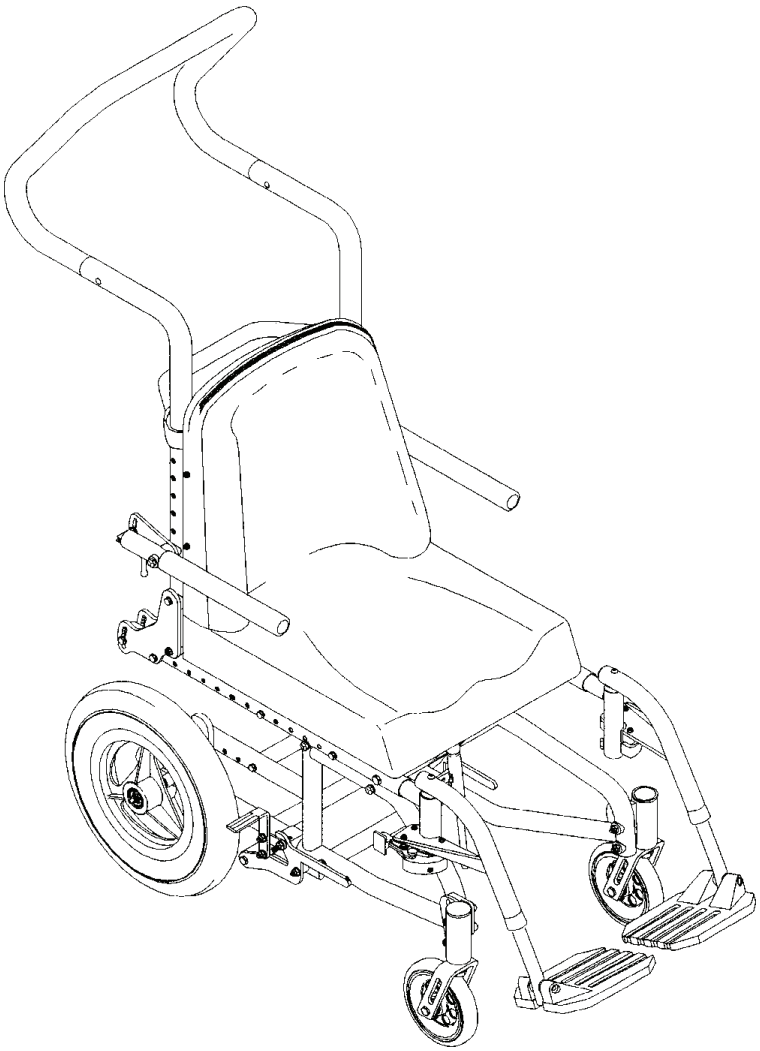
Owner's Operator and Maintenance Manual

Orbit™



DEALER: This manual MUST be given to the user of the product.

USER: BEFORE using this product, read this manual and save for future reference.

For more information regarding Invacare products, parts, and services, please visit www.invacare.com

INVACARE

Yes, you can.

⚠ WARNING

A QUALIFIED TECHNICIAN MUST PERFORM THE INITIAL SET UP OF THIS WHEELCHAIR. ALSO, A QUALIFIED TECHNICIAN MUST PERFORM ALL PROCEDURES SPECIFICALLY INDICATED IN THE MANUAL.

WHEELCHAIR USERS: DO NOT SERVICE OR OPERATE THIS EQUIPMENT WITHOUT FIRST READING AND UNDERSTANDING (1) THE OWNER'S OPERATOR AND MAINTENANCE MANUAL AND (2) THE SEATING SYSTEM'S MANUAL (IF APPLICABLE). IF YOU ARE UNABLE TO UNDERSTAND THE WARNINGS, CAUTIONS, AND INSTRUCTIONS, CONTACT INVACARE TECHNICAL SUPPORT BEFORE ATTEMPTING TO SERVICE OR OPERATE THIS EQUIPMENT - OTHERWISE INJURY OR DAMAGE MAY RESULT.

DEALERS AND QUALIFIED TECHNICIANS: DO NOT SERVICE OR OPERATE THIS EQUIPMENT WITHOUT FIRST READING AND UNDERSTANDING (1) THE OWNER'S OPERATOR AND MAINTENANCE MANUAL, (2) THE SERVICE MANUAL (IF APPLICABLE) AND (3) THE SEATING SYSTEM'S MANUAL (IF APPLICABLE). IF YOU ARE UNABLE TO UNDERSTAND THE WARNINGS, CAUTIONS AND INSTRUCTIONS, CONTACT INVACARE TECHNICAL SUPPORT BEFORE ATTEMPTING TO SERVICE OR OPERATE THIS EQUIPMENT - OTHERWISE, INJURY OR DAMAGE MAY RESULT.

NOTE: Updated versions of this manual are available on www.invacare.com.

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

REGISTER YOUR PRODUCT

The benefits of registering:

1. Safeguard your investment.
2. Ensure long term maintenance and servicing of your purchase.
3. Receive updates with product information, maintenance tips, and industry news.
4. Invacare can contact you or your provider, if servicing is needed on your product.
5. It will enable Invacare to improve product designs based on your input and needs.

Register ONLINE at www.invacare.com
- or -
Complete and mail the form on the next page

Any registration information you submit will be used by Invacare Corporation only, and protected as required by applicable laws and regulations.

PRODUCT REGISTRATION FORM

Register ONLINE at www.invacare.com - or -
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Name _____

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City _____ **State/Province** _____

Zip/Postal Code _____

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Invacare Model No. _____ **Serial No.** _____

Purchased From _____ **Date of Purchase:** _____

1. Method of purchase: (check all that apply)
❑ Medicare ❑ Insurance ❑ Medicaid ❑ Other _____

2. This product was purchased for use by: (check one)
❑ Self ❑ Parent ❑ Spouse ❑ Other

3. Product was purchased for use at:
❑ Home ❑ Facility ❑ Other

4. I purchased an Invacare product because:
❑ Price ❑ Features (list features) _____

5. Who referred you to Invacare products? (check all that apply)
❑ Doctor ❑ Therapist ❑ Friend ❑ Relative ❑ Dealer/Provider ❑ Other_____
❑ Advertisement (circle one): TV, Radio, Magazine, Newspaper ❑ No Referral_____

6. What additional features, if any, would you like to see on this product?

_____ Fold here

7. Would you like information sent to you about Invacare products that may be available for a particular medical condition? ❑ Yes ❑ No
If yes, please list any condition(s) here and we will send you information by email and/or mail about any available Invacare products that may help treat, care for or manage such condition(s):

_____

8. Would you like to receive updated information via email or regular mail about the Invacare home medical products sold by Invacare's dealers? ❑ Yes ❑ No

9. What would you like to see on the Invacare website?

_____

10. Would you like to be part of future online surveys for Invacare products? ❑ Yes ❑ No

11. User's Year of birth: _____

If at any time you wish not to receive future mailings from us, please contact us at Invacare Corporation, CRM Department, 39400 Taylor Parkway, Elyria, OH 44035, or fax to 877-619-7996 and we will remove you from our mailing list.

To find more information about our products, visit www.invacare.com.

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SPECIAL NOTES

Signal words are used in this manual and apply to hazards or unsafe practices which could result in personal injury or property damage. Refer to the following table for definitions of the signal words.

SIGNAL WORD	MEANING
DANGER	Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Caution indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTICE

THE INFORMATION CONTAINED IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE.

WHEELCHAIR USER

As a manufacturer of wheelchairs, Invacare endeavors to supply a wide variety of wheelchairs to meet many needs of the end user. However, final selection of the type of wheelchair to be used by an individual rests solely with the user and his/her healthcare professional capable of making such a selection.

WHEELCHAIR TIE-DOWN RESTRAINTS AND SEAT RESTRAINTS

TRRO includes four factory-installed transport brackets and a wheelchair anchored pelvic belt. TRRO has been crash-tested in accordance with ANSI/RESNA WC Vol 1 Section 19 Frontal Impact Test requirements for wheelchairs with a 168 lb crash dummy, which corresponds to a person with a weight of 114 to 209 lbs.

Only use the transport brackets included with TRRO for the purposes described in this manual.

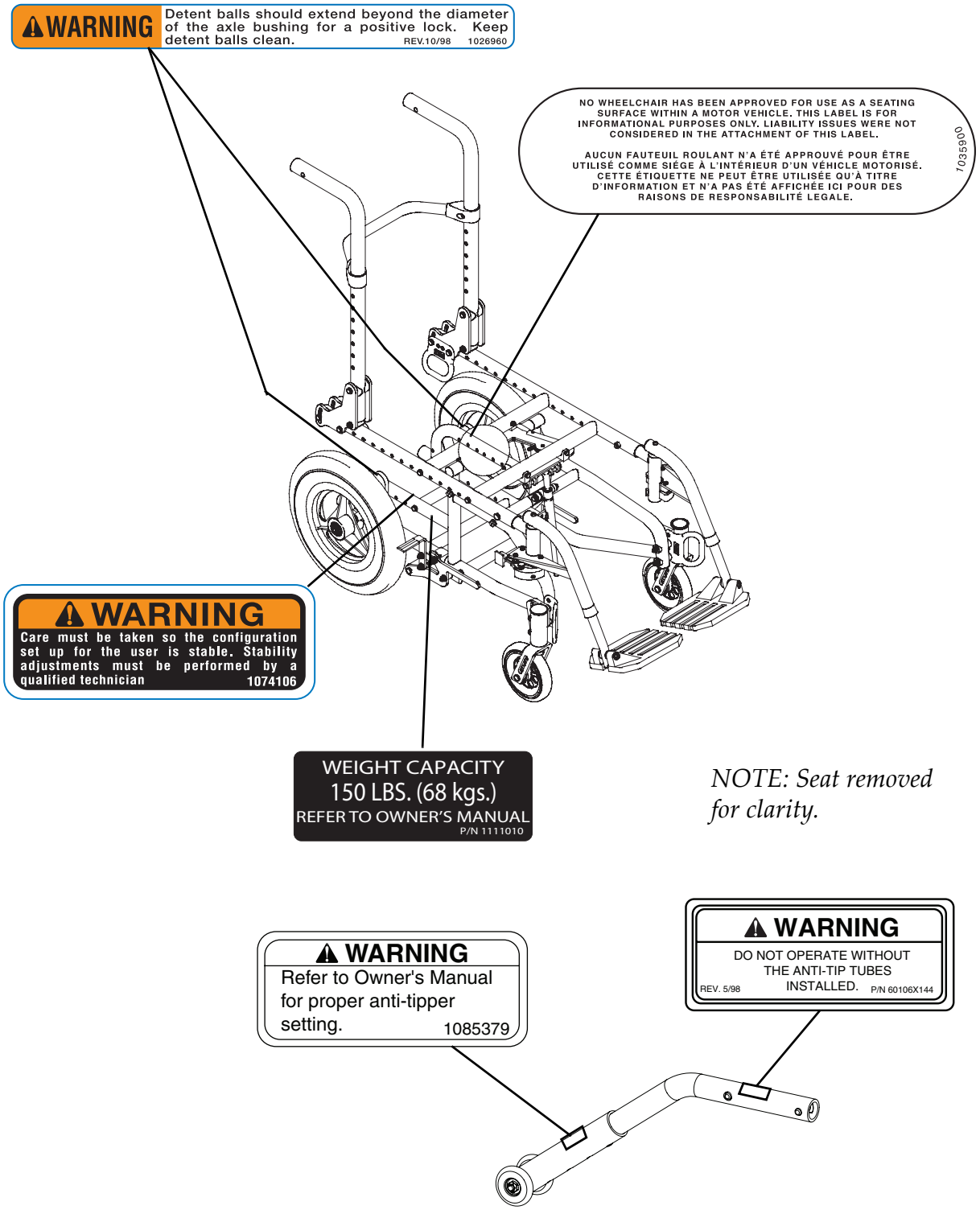
As of this date, the Department of Transportation has not approved any tie-down systems for transportation of a user while in a wheelchair, in a moving vehicle of any type. It is Invacare's position that users of wheelchairs should be transferred into appropriate seating in vehicles for transportation and use be made of the restraints made available by the auto industry. Invacare cannot and does not recommend any wheelchair transportation systems.

ALWAYS wear your seat positioning strap. Inasmuch as the seat positioning strap is an option on this wheelchair (you may order with or without the seat positioning strap), Invacare strongly recommends ordering the seat positioning strap as an additional safeguard for the wheelchair user. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, belt MUST be replaced immediately.

Invacare products are specifically designed and manufactured for use in conjunction with Invacare accessories. Accessories designed by other manufacturers have not been tested by Invacare and are not recommended for use with Invacare products.

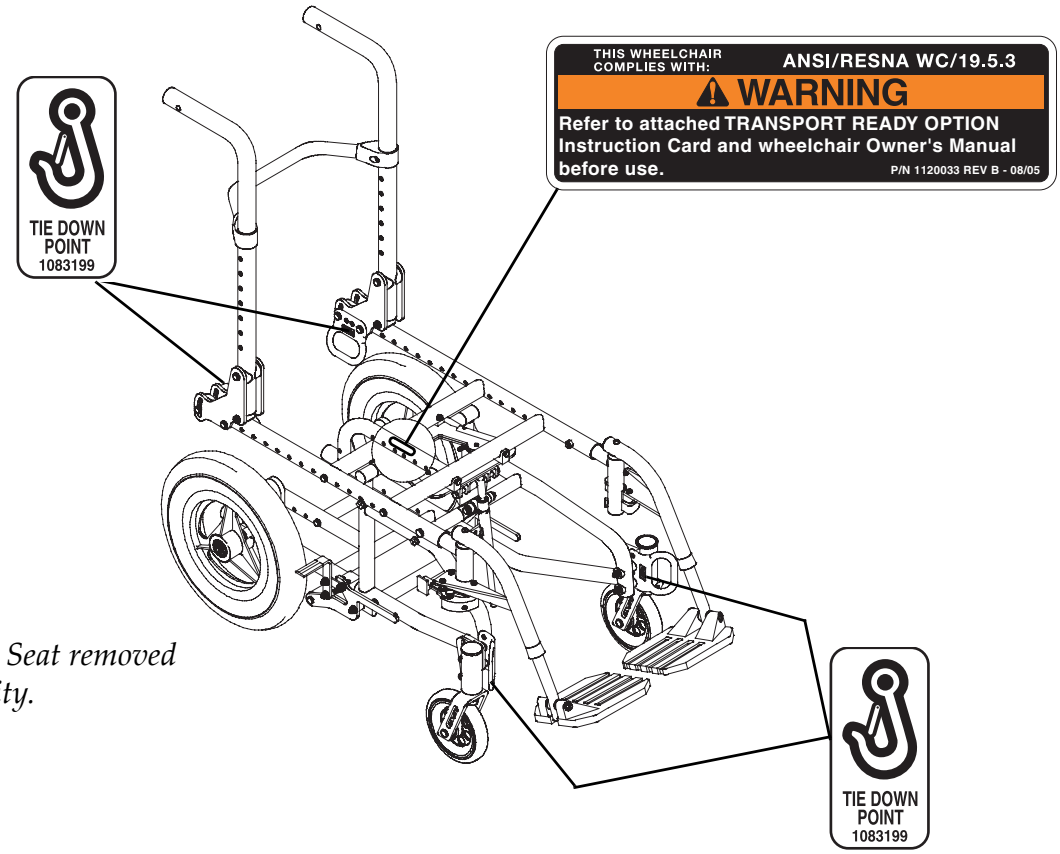
LABEL LOCATION

Standard Labels



NOTE: Seat removed for clarity.

Wheelchairs with TRRO



NOTE: Seat removed for clarity.

TYPICAL PRODUCT PARAMETERS

	ORBIT	
	MINIMUM	MAXIMUM
OVERALL WIDTH:	18.5 inches	24.5 inches
OVERALL DEPTH (WITHOUT FRONT RIGGINGS) SHORT FRAME: LONG FRAME:	 35 inches 39 inches	 38 inches 42 inches
SEAT WIDTH:	10-16 inches (in one inch increments)	
SEAT DEPTH:	10-16 inches (in one inch increments)	
FRAME TYPE:	Aluminum, One-piece	
SEAT-TO-FLOOR*:	15-1/2 to 20-1/2 inches	
BACK STYLE:	Adjustable Angle (80° to 110°), Fold Down Reclining back with stroller handles (Available on long frames only), Fixed Height Anodized Cane with Push Handles	
BACK HEIGHT:	20 inches	
BACK ANGLE (RECLINER ONLY):	90° to 170°	
ARM STYLES:	"T" (Standard), Cantilever (Fixed Hgt. Anodized Cane with Push Handles Only) or Dual Point (Adjustable Height)	
FOOTREST:	Swingaways Footrests and Elevating Legrests	
REAR AXLE:	Permanent or Quick Release	
REAR AXLE MOUNTING PLATES:	Multi-Position	
REAR WHEELS:	12, 20, 22 and 24 inch Composite Pneumatic or Pneumatic-Flat Free Insert, Urethane tires	
HANDRIMS:	Aluminum, Plastic Coated and Projection	
CASTER SIZE:	5 inch Aluminum or Composite Urethane, 6 or 8 inch Composite Urethane, Pneumatic or Pneumatic with Flat Free Insert	
WHEEL LOCKS:	Push-to-Lock, Wheel Lock Extensions, Hill Holder, Foot Activated	
WEIGHT:	32 lbs without front riggings	
SHIPPING WEIGHT (APPROX.):**	45 lbs	

**NOTE: Invacare recommends that rear seat-to-floor height be at least 3/8 inch shorter than front seat-to-floor height. Otherwise a forward seat dump can occur. The rear seat-to-floor heights are based on pneumatic tires or pneumatic tires with flat free inserts. If wheelchair is equipped with urethane tires, subtract 1/4 inch from the measurements listed above. All heights are approximate to ± 1/4 inch due to tire wear and air pressure. The front seat-to-floor heights are approximate to ± 1/4 inch.*

***NOTE: Weights vary depending on how wheelchair is equipped.*

SECTION 1—GENERAL GUIDELINES

⚠ WARNING

SECTION 1 - GENERAL GUIDELINES contains important information for the safe operation and use of this product. DO NOT use this product or any available optional equipment without first completely reading and understanding these instructions and any additional instructional material such as owner's manuals, service manuals or instruction sheets supplied with this product or optional equipment. If you are unable to understand the Warnings, Cautions or Instructions, contact a healthcare professional, dealer or technical personnel before attempting to use this equipment. Otherwise, injury or damage may occur.

Information for Healthcare Professionals/Assistants

The Orbit wheelchair MUST be operated by a healthcare professional or assistant when in ANY reclined position.

Make sure the patient is properly positioned in the wheelchair before reclining or inclining (reverse recline) to maintain maximum stability and safety.

Assistants MUST be prepared to support the weight of the occupant when reclining, or returning the occupant of the wheelchair to the full upright position. Make sure to use proper body mechanics (use your legs) or seek assistance if necessary to avoid injury.

ALWAYS engage both wheel locks while reclining or inclining (reverse recline) the wheelchair.

Stability - All Models

The seat height, seat depth, back angle, pivot point of seat frame, seating system, caster position, size and position of the rear wheels, as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the nine may cause the wheelchair to decrease in stability. These adjustments MUST be performed by an authorized Invacare dealer or qualified technician.

NOTE: When changes to the left hand column occur, follow across the chart and refer to the procedure that is checked (✓) to maintain the proper stability, safety and handling of the wheelchair.	CASTER SIZE	CASTER POSITION	WHEEL SIZE	WHEEL POSITION	ANTI-TIPPERS	USER CONDITION
CASTER SIZE	•	X	X	X	X	X
CASTER POSITION	X	•	X	X	X	X
WHEEL SIZE	X	X	•	X	X	X
ANTI-TIPPERS	X	X	X	•	X	X
USER CONDITION	X	X	X	X	X	•

Anti-Tippers

Anti-tippers MUST be attached at all times. Inasmuch as the anti-tippers are an option on this wheelchair (you may order with or without the anti-tippers), Invacare strongly recommends ordering the anti-tippers as a safeguard for the wheelchair user.

ALWAYS use anti-tippers. When outdoors on wet, soft ground or on gravel surfaces, anti tippers may not provide the same level of protection against tipover. Extra caution must be observed when traversing such surfaces.

Operating Information

After ANY adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

Unless otherwise noted, all service and adjustment should be performed while the wheelchair is unoccupied.

To determine and establish your particular safety limits, practice bending, reaching and transferring activities in several combinations in the presence of a qualified healthcare professional before attempting active use of the wheelchair.

When cleaning rear cane or hand grip areas use only a clean towel lightly dampened with cool water. Verify that grips are dry prior to use. Use of soap or ammonia based cleaning solutions will result in the hand grips sliding off the cane assembly. Failure to observe this warning may result in injury to the user or bystanders.

If the wheelchair is exposed to extreme temperature (above 100°F or below 32°F), high humidity and/or becomes wet, prior to use, ensure that the handgrips do not twist on the handle. Otherwise, damage or injury may occur.

Avoid storing or using the wheelchair near open flame or combustible products. Serious injury or damage to property may result.

ALWAYS keep hands and fingers clear of moving parts to avoid injury.

DO NOT traverse, climb or go down ramps or slopes greater than 9°.

DO NOT attempt to move up or down an incline with a water, ice or oil film.

DO NOT operate on roads, streets or highways.

DO NOT attempt to ride over curbs or obstacles. Doing so may cause your wheelchair to tip over and cause bodily harm to you or damage to the wheelchair.

DO NOT attempt to reach objects if you have to move forward in the seat.

DO NOT attempt to reach objects if you have to pick them up from the floor by reaching down between your knees.

DO NOT lean over the top of the back upholstery to reach objects behind you, as this may cause the wheelchair to tip over.

DO NOT shift your weight or sitting position toward direction you are reaching as the wheelchair may tip over.

DO NOT attempt to stop a moving wheelchair with wheel locks. Wheel locks are not brakes.

DO NOT tip the wheelchair without assistance.

DO NOT use an escalator to move a wheelchair between floors. Serious bodily injury may occur.

Before attempting to transfer in or out of the wheelchair, every precaution should be taken to reduce the gap distance. Turn both casters parallel to the object you are transferring onto. When transferring to and from the wheelchair, ALWAYS engage both wheel locks.

DO NOT attempt to lift the wheelchair by any removable (detachable) parts. Lifting by means of any removable (detachable) parts of the wheelchair may result in injury to the user or damage to the wheelchair.

DO NOT stand on the frame of the wheelchair.

DO NOT use the footplate as a platform. When getting in or out of the wheelchair, make sure that the footplates are in the upward position.

ALWAYS wear your seat positioning strap. Inasmuch as the seat positioning strap is an option on this wheelchair (you may order with or without the seat positioning strap), Invacare strongly recommends ordering the seat positioning strap as an additional safeguard for the wheelchair user. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, belt must be replaced immediately.

ALWAYS use the handrims for self-propulsion. Inasmuch as the handrims are an option on this wheelchair (you may order with or without the handrims), Invacare strongly recommends ordering the handrims as an additional safeguard for the wheelchair user.

Tire Pressure

DO NOT use your wheelchair unless it has the proper tire pressure (P.S.I.). DO NOT overinflate the tires. Failure to follow these suggestions may cause the tire to explode and cause bodily harm. The recommended tire pressure is listed on the side wall of the tire.

Weight Training

Invacare does not recommend the use of its wheelchairs as a weight training apparatus. Invacare wheelchairs have not been designed or tested as a seat for any kind of weight training. If occupant uses said wheelchair as a weight training apparatus, Invacare shall not be liable for bodily injury or damage to the wheelchair and the warranty is void.

Weight Limitation

The Orbit wheelchair has a weight limitation of 150 lbs.

SECTION 2—SAFETY/HANDLING OF WHEELCHAIRS

Safety/Handling of Wheelchairs

Safety and handling of the wheelchair require the close attention of the wheelchair user as well as the assistant. This manual points out the most common procedures and techniques involved in the safe operation and maintenance of the wheelchair. It is important to practice and master these safe techniques until you are comfortable in maneuvering around the frequently encountered architectural barriers.

Use this information only as a basic guide. The techniques that are discussed on the following pages have been used successfully by many.

Individual wheelchair users often develop skills to deal with daily living activities that may differ from those described in this manual. Invacare recognizes and encourages each individual to try what works best for him/her in overcoming architectural obstacles that they may encounter. However, all warnings and cautions given in this manual MUST be heeded. Techniques in this manual are a starting point for the new wheelchair user and assistant with "safety" as the most important consideration for all.

Stability and Balance

⚠ WARNING

ALWAYS wear your seat positioning strap. Inasmuch as the seat positioning strap is an option on this wheelchair (you may order with or without the seat positioning strap), Invacare strongly recommends ordering the seat positioning strap as an additional safeguard for the wheelchair user. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, belt MUST be replaced immediately.

To assure stability and proper operation of your wheelchair, you MUST maintain proper balance at all times. Your wheelchair has been designed to remain upright and stable during normal daily activities as long as you do not move beyond the center of gravity.

Virtually all activities which involve movement in the wheelchair have an effect on the center of gravity. Invacare recommends using seat/chest positioning straps for additional safety while involved in activities that shift your weight.

DO NOT lean forward out of the wheelchair any further than the length of the armrests. Make sure the casters are pointing in the forward position whenever you lean forward. This can be achieved by advancing the wheelchair and then reversing it in a straight line.

Coping With Everyday Obstacles

Coping with the irritation of everyday obstacles can be alleviated somewhat by learning how to manage your wheelchair. Keep in mind your center of gravity to maintain stability and balance.

A Note to Wheelchair Assistants

When assistance to the wheelchair user is required, remember to use good body mechanics. Keep your back straight and bend your knees whenever tipping the wheelchair or traversing curbs, or other impediments.

DO NOT attempt to lift the wheelchair by any removable (detachable) parts. Lifting by means of any removable (detachable) parts of the wheelchair may result in injury to the user or damage to the wheelchair.

If the wheelchair is exposed to extreme temperature (above 100°F or below 32°F), high humidity and/or becomes wet, prior to use, ensure handgrips do not twist on the wheelchair's handle - otherwise damage or injury may occur.

Also, be aware of detachable parts such as armrests or legrests. These must NEVER be used to move the wheelchair or as lifting supports, as they may be inadvertently released, resulting in possible injury to the user and/or assistant(s).

When learning a new assistance technique, have an experienced assistant help you before attempting it alone.

⚠ WARNING

DO NOT attempt to reach objects if you have to move forward in the seat or pick them up from the floor by reaching down between your knees.

The seat height, seat depth, back angle, pivot point of seat frame, seating system, caster position, size and position of the rear wheels, as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the nine may cause the wheelchair to decrease in stability. These adjustments must be performed by an authorized Invacare dealer or qualified technician.

Many activities require the wheelchair owner to reach, bend and transfer in and out of the wheelchair. These movements will cause a change to the normal balance, the center of gravity, and the weight distribution of the wheelchair. To determine and establish your particular safety limits, practice bending, reaching and transferring activities in several combinations in the presence of a qualified healthcare professional before attempting active use of the wheelchair.

Proper positioning is essential for your safety. When reaching, leaning, or bending forward, it is important to use the front casters as a tool to maintain stability and balance.

Reaching, Leaning and Bending Forward

⚠ WARNING

DO NOT attempt to reach objects if you have to move forward in the seat or pick them up from the floor by reaching down between your knees.

NOTE: For this procedure, refer to FIGURE 2.1.

Position the front casters so that they are extended as far forward as possible and engage wheel locks.

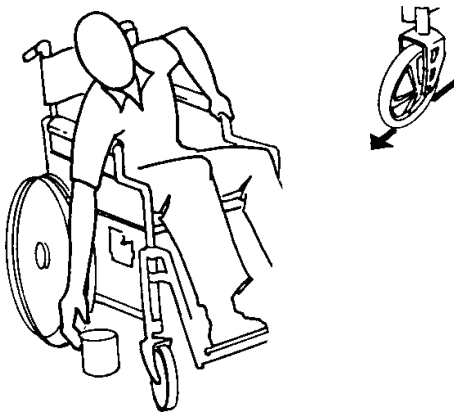


FIGURE 2.1 Reaching, Leaning and Bending Forward

Reaching and Leaning Backwards

⚠ WARNING

DO NOT lean over the top of the back upholstery to reach objects behind you, as this may cause the wheelchair to tip over.

NOTE: For this procedure, refer to FIGURE 2.2.

Position wheelchair as close as possible to the desired object. Point front casters forward to create the longest possible wheelbase. Reach back only as far as your arm will extend without changing your sitting position.

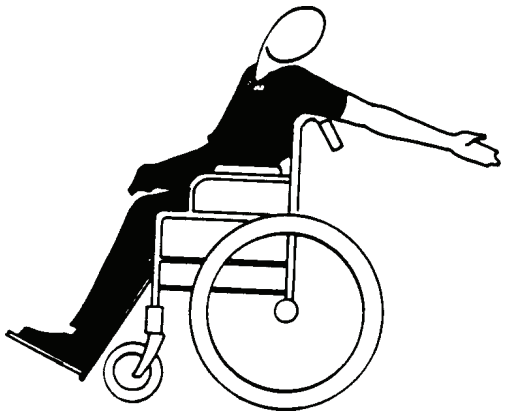


FIGURE 2.2 Reaching and Leaning Backwards

Tipping

⚠ WARNING

DO NOT tip the wheelchair without assistance.

When tipping the wheelchair, an assistant should grasp the back of the wheelchair on a non-removable (non-detachable) part. Inform the wheelchair occupant before tipping the wheelchair and remind him/her to lean back. Be sure the occupant's feet and hands are clear of all wheels and/or pinch points.

After mastering the techniques of tipping the wheelchair, use one of the following methods to tackle curbs, short stairs, etc.

Method 1 - Wheelchair With Step Tubes

NOTE: For this procedure, refer to FIGURE 2.3.

Place foot on the step tube and begin to tilt the wheelchair toward you. Apply a continuous downward motion until the balance point is achieved and the front casters clear the curb. At this point, the assistant will feel a difference in the weight distribution.

⚠ WARNING

When lowering the front casters of the wheelchair, DO NOT let the wheelchair drop the last few inches to the ground. This could result in injury to the occupant and/or damage to the wheelchair.

Roll the wheelchair forward and slowly lower the front of the wheelchair in one continuous movement onto the sidewalk. Push the wheelchair forward until the rear wheels roll up and over the curb.

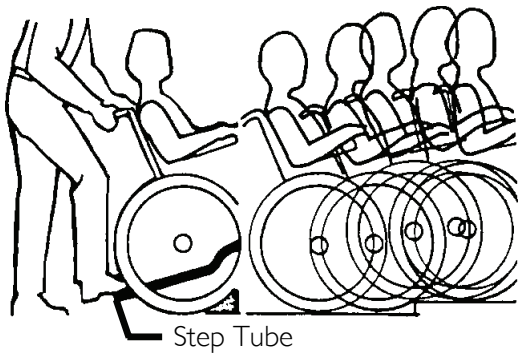


FIGURE 2.3 Method 1 - Wheelchair With Step Tubes

Method 2 - Wheelchair Without Step Tubes

⚠ WARNING

ALWAYS check hand grips for looseness before using the wheelchair. If loose and/or worn, replace immediately.

NOTE: For this procedure, refer to FIGURE 2.4.

This method requires two assistants. The second assistant should be positioned at the front of the wheelchair lifting upward on a non-removable (non-detachable) part of the wheelchair frame when lifting the wheelchair and stabilizing the wheelchair when the wheelchair is being lowered to the ground.

The first assistant should stand on the sidewalk and turn the wheelchair so that the rear wheels are against the curb. Turn the anti-tippers so the anti-tip wheels are pointing up. The wheelchair should be tilted back to the balance point and, in one continuous upward movement, the rear wheels should be pulled up and over the curb. DO NOT return the front casters to the ground until the wheelchair has been pulled backward far enough for the front casters to clear the edge of the curb.

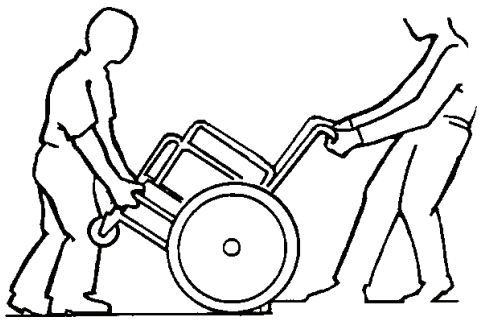


FIGURE 2.4 Method 2 - Wheelchair Without Step Tubes

⚠ WARNING

When lowering the front casters of the wheelchair, DO NOT let the wheelchair drop the last few inches to the ground. This could result in injury to the occupant and/or damage to the wheelchair.

Roll the wheelchair backward and slowly lower the wheelchair in one continuous movement. Turn the anti-tippers so the anti-tip wheels are facing down.

Stairways

⚠ WARNING

ALWAYS wear your seat positioning strap. Inasmuch as the seat positioning strap is an option on this wheelchair (you may order with or without the seat positioning strap), Invacare strongly recommends ordering the seat positioning strap as an additional safeguard for the wheelchair user. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, belt MUST be replaced immediately.

DO NOT attempt to lift a wheelchair by lifting on any removable (detachable) parts. Lifting by means of any removable (detachable) parts of the wheelchair may result in injury to the user or damage to the wheelchair.

ALWAYS check hand grips for looseness before using the wheelchair. If loose and/or worn, replace immediately.

Extreme caution is advised when it is necessary to move an occupied wheelchair up or down the stairs. Invacare recommends that, if possible, the user be removed from the wheelchair prior to moving. Invacare recommends using two assistants and making thorough preparations. Make sure to use only secure, non-detachable parts for hand-held supports.

NOTE: For this procedure, refer to FIGURE 2.5.

Follow this procedure for moving the wheelchair between floors when an elevator is not available:

1. If necessary, rotate the anti-tippers so the wheels are facing up.
2. After the wheelchair has been tilted back to the balance point, one assistant (in the rear) backs the wheelchair up against the first step, while securely grasping a non-removable (non-detachable) part of the wheelchair for leverage.

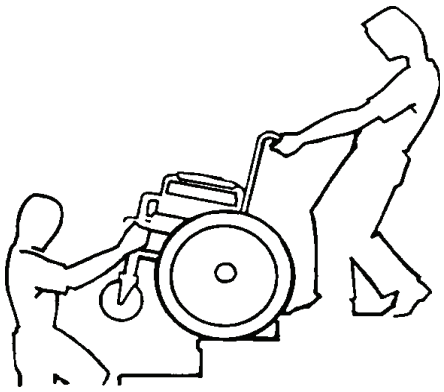


FIGURE 2.5 Stairways

3. The second assistant, with a firm hold on a non-detachable part of the framework, lifts the wheelchair up and over the stair and steadies the wheelchair as the first assistant places one foot on the next stair and repeats STEP 1.
4. The wheelchair should not be lowered until the last stair has been negotiated and the wheelchair has been rolled away from the stairway.
5. If necessary, rotate the anti-tippers so the wheels are facing down.

Escalators

⚠ WARNING

DO NOT use an escalator to move a wheelchair between floors. Serious bodily injury may occur.

Transferring To and From Other Seats

⚠ WARNING

Before attempting to transfer in or out of the wheelchair, every precaution should be taken to reduce the gap distance. Turn both casters parallel to the object you are transferring onto. Also be certain the wheel locks are engaged to help prevent the wheels from moving.

CAUTION

When transferring, position yourself as far back as possible in the seat. This will help prevent damaged upholstery and the possibility of the wheelchair tipping forward.

NOTE: For this procedure, refer to FIGURE 2.6.

NOTE: This activity may be performed independently provided you have adequate mobility and upper body strength.

Position the wheelchair as close as possible alongside the seat to which you are transferring, with the front casters pointing parallel to it. Remove or flip up the armrest. Engage wheel locks. Swing away or remove front rigging. Shift body weight into seat with transfer.

During independent transfer, little or no seat platform will be beneath you. Use a transfer board if at all possible.

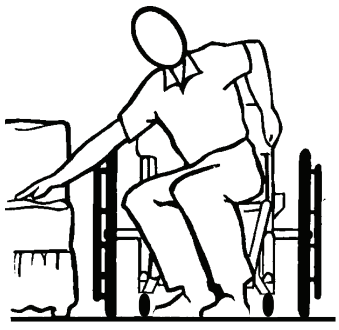


FIGURE 2.6 Transferring To and From Other Seats

SECTION 3—SAFETY INSPECTION/TROUBLESHOOTING

NOTE: Every six months or as necessary, take your wheelchair to a qualified technician for a thorough inspection and servicing. Regular cleaning will reveal loose or worn parts and enhance the smooth operation of your wheelchair. To operate properly and safely, your wheelchair must be cared for just like any other vehicle. Routine maintenance will extend the life and efficiency of your wheelchair.

Safety Inspection Checklist

Initial adjustments should be made to suit your personal body structure and preference. Thereafter follow these maintenance procedures:

Inspect/Adjust Initially

- ❑ Ensure that the wheelchair rolls straight (no excessive drag or pull to one side).
- ❑ Inspect for loose or missing hardware on frame and crossbraces.
- ❑ Inspect for bent frame or crossbraces.
- ❑ Check that the wheel locks do not interfere with tires when rolling.
- ❑ Check that the wheel lock pivot points are free of wear and looseness.
- ❑ Check that the wheel locks are easy to engage.
- ❑ Ensure that the wheel locks prevent the wheelchair from moving when engaged.
- ❑ Inspect the seat and back for rips and sagging.
- ❑ Inspect the seat and back for loose or broken hardware.
- ❑ Inspect the back cane hand grips for wear/looseness/deterioration.
- ❑ Inspect seat positioning strap for any signs of wear. Ensure buckle latches. Verify hardware that attaches strap to frame is secure and undamaged. Replace if necessary.
- ❑ Inspect tires for flat spots and wear.
- ❑ Check pneumatic tires for proper inflation.

CAUTION

As with any vehicle, check the wheels and tires periodically for cracks and wear. Replace if damaged.

- ❑ Check that there is no excessive side movement or binding in the rear wheels when lifted and spun.
- ❑ Inspect rear wheels for cracked, bent or broken spokes.
- ❑ Ensure all spokes are uniformly tight.

- ❑ Inspect handrims for signs of rough edges or peeling.
- ❑ Inspect axle assembly for proper tension by spinning caster. Caster should come to a gradual stop.
- ❑ Adjust front casters/forks bearing system if wheel wobbles noticeably or binds to a stop.
- ❑ Ensure wheel bearings are clean and free of moisture.
- ❑ Check headtube locknuts for tightness.
- ❑ Inspect casters for cracks and wear.
- ❑ Inspect front casters for cracked, bent or broken spokes.
- ❑ Clean upholstery and armrests.
- ❑ Check that all labels are present and legible. Replace if necessary.
- ❑ Ensure casters are free of debris.
- ❑ Make sure detent balls of the quick-release pin are fully released before operating the wheelchair.
- ❑ The detent balls MUST be protruding past the top of the seat plate assembly for a positive lock.
- ❑ Keep detent balls clean.

Inspect/Adjust Weekly

- ❑ Ensure that the wheel locks prevent the wheelchair from moving when engaged.
- ❑ Inspect tires for flat spots and wear.
- ❑ Check pneumatic tires for proper inflation.
- ❑ Inspect rear wheels for cracked, bent or broken spokes.
- ❑ Ensure all spokes are uniformly tight.
- ❑ Inspect axle assembly for proper tension by spinning caster. Caster should come to a gradual stop.
- ❑ Inspect front caster for cracked, bent or broken spokes.
- ❑ Ensure casters are free of debris.
- ❑ Make sure detent balls of the quick-release pin are fully released before operating the wheelchair.
- ❑ The detent balls MUST be protruding past the top of the seat plate assembly for a positive lock.
- ❑ Keep detent balls clean.

Inspect/Adjust Monthly

- ❑ Ensure that the wheelchair rolls straight (no excessive drag or pull to one side).
- ❑ Check that the wheel locks do not interfere with tires when rolling.

- ❑ Check that the wheel lock pivot points are free of wear and looseness.
- ❑ Inspect seat and back for loose or broken hardware.
- ❑ Inspect seat positioning strap for any signs of wear. Ensure buckle latches. Verify hardware that attaches strap to frame is secure and undamaged. Replace if necessary.
- ❑ Inspect back cane hand grips for wear/looseness/deterioration.
- ❑ Adjust front casters/forks bearing system if wheel wobbles noticeably or binds to a stop.
- ❑ Ensure wheel bearings are clean and free of moisture.
- ❑ Check headtube locknuts for tightness.
- ❑ Ensure casters are free of debris.
- ❑ Make sure detent balls of the quick-release pin are fully released before operating the wheelchair.
- ❑ The detent balls MUST be protruding past the top of the seat plate assembly for a positive lock.
- ❑ Keep detent balls clean.

Inspect/Adjust Periodically

- ❑ Inspect frame and crossbraces for loose or missing hardware.
- ❑ Inspect for bent frame or crossbraces.
- ❑ Check that wheel locks are easy to engage.
- ❑ Inspect seat and backs for rips and sagging.
- ❑ Check that there is no excessive side movement or binding in the rear wheels when lifted and spun.
- ❑ Inspect handrims for signs of rough edges or peeling.
- ❑ Adjust front casters/forks bearing system if wheel wobbles noticeably or binds to a stop.
- ❑ Ensure wheel bearings are clean and free of moisture.
- ❑ Inspect casters for cracks and wear.
- ❑ Clean upholstery and armrests.
- ❑ Check that all labels are present and legible. Replace if necessary.
- ❑ Ensure casters are free of debris.
- ❑ Make sure detent balls of the quick-release pin are fully released before operating the wheelchair.
- ❑ The detent balls MUST be protruding past the top of the seat plate assembly for a positive lock.
- ❑ Keep detent balls clean.

Troubleshooting

Chair Veers Right/ Left	Chair 3 Wheels	Sluggish Turn or Performance	Casters Flutter	Squeaks and Rattles	Looseness in Chair	Solutions
X	X	X	X			Check tires for correct and equal pressure.
		X	X	X	X	Check for loose nuts and bolts.
X	X		X			Check caster headtube angle.
X	X					Check that rear wheels are equally spaced away from seat frame.

Maintenance

Maintenance Safety Precautions

⚠ WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely.

CAUTION

DO NOT overtighten hardware attaching to the frame. This could cause damage to the frame tubing.

Suggested Maintenance Procedures

1. Before using the wheelchair, make sure all nuts and bolts are tight. Check all parts for damage or wear and replace. Check all parts for proper adjustment.
2. Keep quick-release axles free of dirt and lint to ensure positive locking and proper operation. Refer to Adjusting the Quick-Release Axle on page 62.
3. Oil quick-release axles at least once a month (3-in-1™ oil or equivalent).
4. NON-RECLINER SEAT FRAMES - Periodically check the back fold down mechanisms to ensure that they lock the back securely in place. Disassemble and clean if necessary. Refer to Replacing the Locking Mechanism in the Back Cane on page 52.

⚠ WARNING

DO NOT use the wheelchair unless it has the proper tire pressure (P.S.I.). DO NOT overinflate the tires. Failure to follow these suggestions may cause the tire to explode and cause bodily harm.

5. If tires are pneumatic, recommended tire pressure is listed on the side wall of the tire.
6. The wheels and tires should be checked periodically for cracks and wear, and should be replaced at your authorized dealer or by a qualified technician.
7. Periodically check handrims to ensure they are secured to the rear wheels. Refer to Replacing Handrims on page 63.
8. Periodically adjust wheel locks in correlation to tire wear. Refer to Adjusting the Wheel Lock on page 67.
9. Periodically check front caster wheel bearings to make sure they are clean and free from moisture. Use a Teflon® lubricant if necessary.

SECTION 4—ASSEMBLY

⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

Assembling/Disassembling the Removable Orbit Wheelchair

NOTE: For this procedure, refer to FIGURE 4.1 on page 29.

Assembling the Seat Frame to the Base Frame

1. Unfold back canes. Refer to Folding/Unfolding the Back Canes on page 56.
2. If so equipped, unfold cantilever arms. Refer to Using/Installing/Adjusting Cantilever Arms on page 48.
3. If so equipped, install the T-arms. Refer to Installing/Removing the T-arms on page 42.
4. Install rear wheels. Refer to Removing/Installing Rear Wheels on page 61.
5. Turn the plungers located on the underside of the base frame plate until an audible click is heard. See Detail "A" of FIGURE 4.1.
6. Visually inspect the base frame plate to ensure the locking buttons protrude all the way through the plate.
7. Place seat frame plate on base frame plate depressing the locking buttons.
8. Slide seat frame rearward.

⚠ WARNING

Ensure both sides of seat frame plate are underneath the locking channels of the base frame plate and the seat frame is securely locked in place before using the wheelchair, otherwise injury may result.

9. With both sides of seat frame plate underneath the locking channels of the base frame plate, continue to slide until an audible click from both locking buttons is heard.

NOTE: If an audible click is not heard from both locking buttons, wiggle seat frame plate back and forth until an audible click is heard. This will ensure the seat frame is locked into position.

⚠ WARNING

Make sure the locking pins of the quick-release pin are fully released before operating the wheelchair.

⚠ WARNING

The locking pins MUST be protruding past the top of the seat plate assembly for a positive lock.

Keep locking pins clean.

10. Push in on the tip of the quick-release pin and reinstall in the seat/base frame plate assembly. See Detail "A" of FIGURE 4.1.
11. Pull down on quick-release pin to ensure positive lock.

NOTE: If a seating system is being used on the wheelchair, refer to the seating system Owner's Manual for installation and removal of the seating system.

12. Install the seating system onto the wheelchair, if so equipped.

Disassembling the Seat Frame from the Base Frame

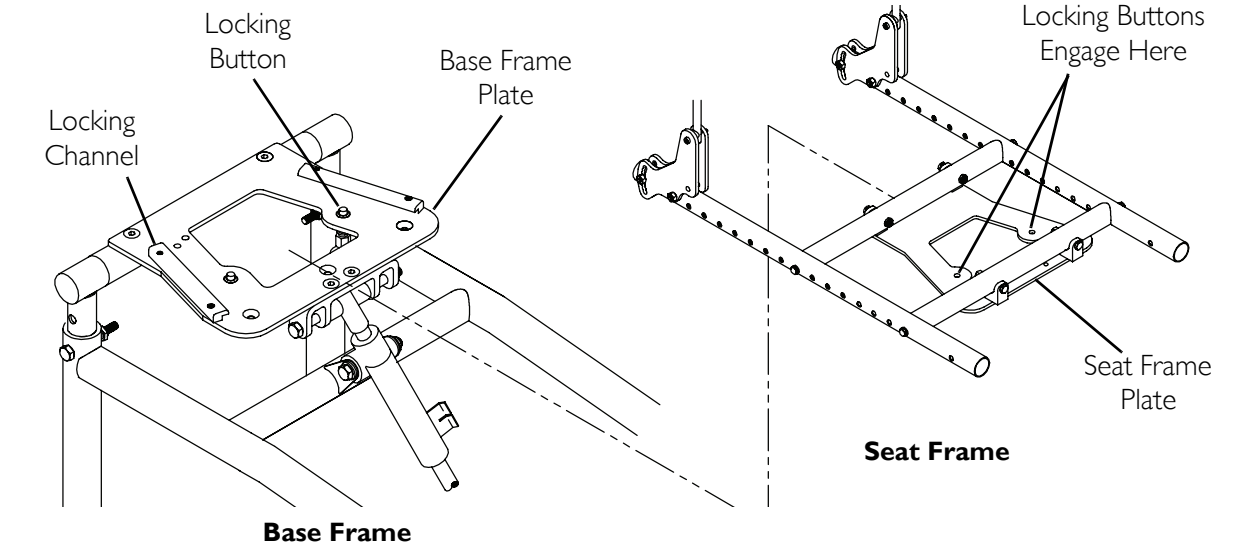
⚠ WARNING

Invacare recommends that the wheelchair users NOT be transported in vehicles of any kind while in wheelchairs. As of this date, the Department of Transportation has not approved any tie-down systems for transportation of a user while in a wheelchair, in a moving vehicle of any type.

1. If necessary, return the wheelchair to 0° tilt. Refer to Engaging Tilt-In-Space on page 70.
2. Remove occupant from wheelchair.
3. Pull down and turn plungers located on underside of base frame plate. See Detail "A" of FIGURE 4.1.
4. Push in on the tip of the quick release pin located on underside of base frame plate and pull out of seat/base frame plate assembly. See Detail "A" of FIGURE 4.1.
5. To disengage the seat frame from the base frame, push/pull the seat frame forward.

NOTE: If a seating system is being used on the wheelchair, refer to the seating system Owner's Manual for installation and removal of the seating system.

6. If so equipped, remove the existing seating system from the wheelchair.
7. If so equipped, fold cantilever arms. Refer to Using/Installing/Adjusting Cantilever Arms on page 48.
8. If so equipped, remove the T-arms. Refer to Installing/Removing the T-arms on page 42.
9. Fold down the back canes. Refer to Folding/Unfolding the Back Canes on page 56.
10. Remove rear wheels. Refer to Removing/Installing Rear Wheels on page 61.



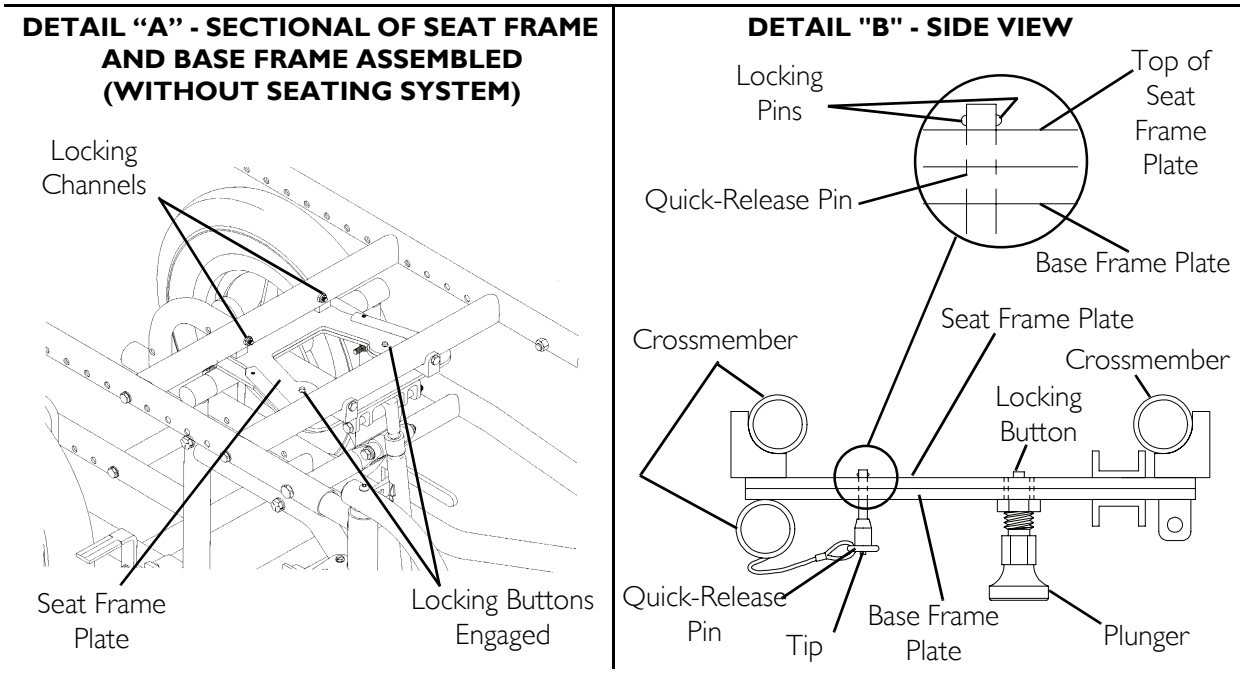


FIGURE 4.1 Assembling/Disassembling the Removable Orbit Wheelchair

SECTION 5—FRONT RIGGINGS

⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

Installing/Removing Front Riggings

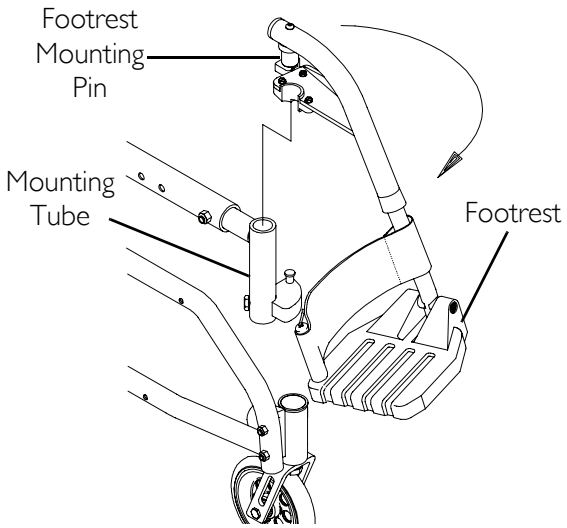
NOTE: For this procedure, refer to FIGURE 5.1.

Installing Front Riggings

1. Turn the front rigging assembly to the side (open front rigging is perpendicular to wheelchair).
2. Install the hinge plates on the front rigging assembly onto the hinge pins on the wheelchair frame.
3. Push the front rigging assembly towards the inside of the wheelchair until it locks into place.

NOTE: The footplate will be on the inside of the wheelchair when locked in place.

4. Repeat this procedure for the other front rigging assembly.
5. To release the front rigging, push the front rigging release lever inward, rotate front rigging outward.



NOTE: All swingaway style footrests are installed the same way. Only one style of footrest is shown for clarity

FIGURE 5.1 Installing/Removing Front Riggings

Removing Front Riggings

1. Push the front rigging release lever inward
2. Rotate swingaway front rigging assembly outward.
3. Lift the swingaway front rigging assembly off the hinge pins.

Adjusting Footplate Height

NOTE: Release the footrest locking mechanism and lift the mounting pin out of the mounting tube. Lay the assembly on a flat surface to simplify this procedure.

Adjusting Pivot Slide Tube Height

NOTE: For this procedure, refer to FIGURE 5.2.

1. Remove any accessories that are attached to the footrests.
2. Remove the mounting screw and coved washer and position the footrest assembly to the desired height.
3. Align the mounting hole in the footrest support, reinsert the mounting screw and coved washer and securely tighten.
4. Repeat STEPS 1-3 for the other footrest.
5. Reinstall any accessories attached to the footrest.

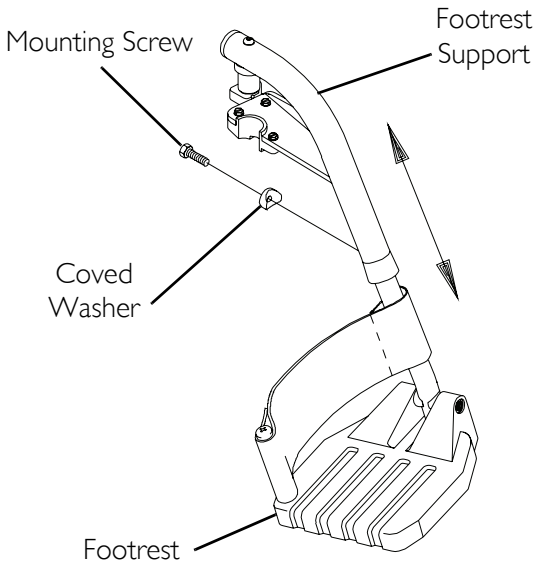


FIGURE 5.2 Adjusting Footplate Height

Adjusting Footplate Height (70° MFX and 90° Footrests Only)

NOTE: For this procedure, refer to FIGURE 5.3 on page 32.

1. Remove any accessories that are attached to the footrests.
2. Remove the mounting screw, coved washer and locknut that secure the footplate to the footrest support.
3. Reposition the footplate to the desired height.

⚠ WARNING

DO NOT overtighten. Footrest must be able to rotate upward from the horizontal to vertical position.

4. Reinstall the mounting screw through the mounting holes of the footplate and footrest support.
5. Secure the footplate to the footrest support with the coved washer and locknut. Securely tighten.

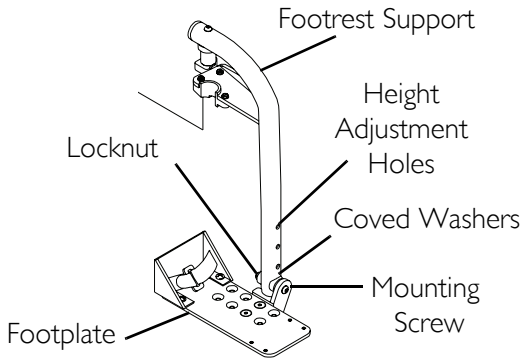


FIGURE 5.3 Adjusting Footplate Height (70° MFX and 90° Footrests Only)

Installing 3-Inch Extension

NOTE: For this procedure, refer to FIGURE 5.4.

NOTE: Note the mounting hole position of the mounting screw, washers, and locknut for proper reassembly of the footrest.

NOTE: If using ANY type of extension with the adjustable angle footplate, refer to Adjusting Perpendicular and/or Inversion/Eversion Adjustable Angle Flip-up Footplate on page 35.

1. Remove any accessories that are attached to the footrests.
2. Remove the mounting screw, washer and locknut that secure the footplate to the footrest support.
3. Insert the 3-inch extension into the footrest support and align the mounting holes.
4. Secure the 3-inch extension to the footrest support with new mounting screw, washer and locknut.
5. Position the footplate at the desired height.

⚠ WARNING

DO NOT overtighten. Footrest must be able to rotate upward from the horizontal to vertical position.

6. Secure the footplate to the 3-inch extension with the coved washer and locknut. Securely tighten.

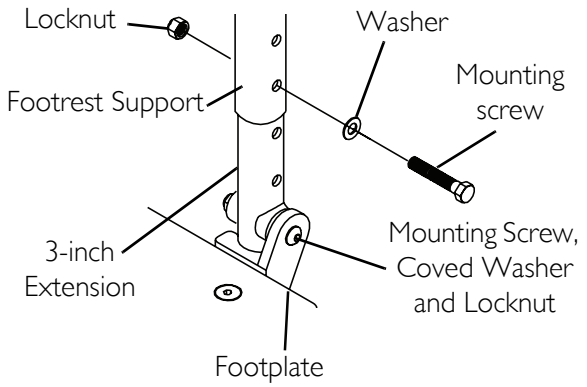


FIGURE 5.4 Installing 3-Inch Extension

Installing Elevating Legrest

NOTE: For this procedure, refer to FIGURE 5.5.

1. Insert the pivot tube into the legrest support and secure it with the bolt and nut.
2. Place legrest on the outside of the wheelchair and insert the mounting pin into the mounting tube.
3. Rotate legrest toward the inside of the wheelchair until it locks in place.

NOTE: The footplate will be positioned on the inside of the wheelchair when locked in place.

4. Repeat STEPS 1-3 for the opposite legrest.
5. After seated in wheelchair, adjust footrest to correct height by loosening nut and sliding the pivot tube up or down until desired height is obtained.
6. To release the legrest, push the legrest release handle toward the inside of the wheelchair (facing the front of the wheelchair) and swing the legrest to the outside of the wheelchair.

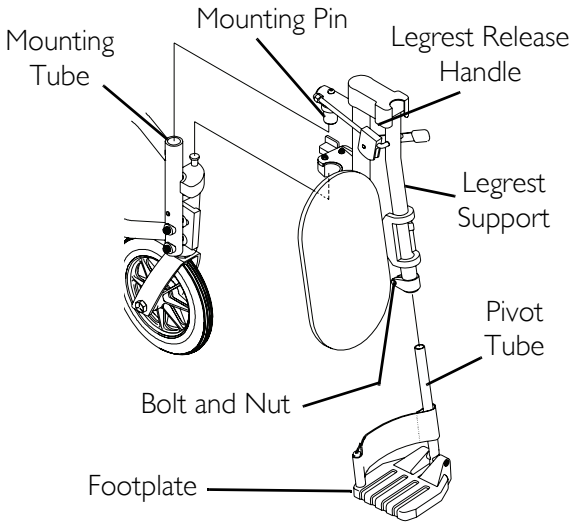


FIGURE 5.5 Installing Elevating Legrest

Adjusting Elevating Legrest

NOTE: For this procedure, refer to FIGURE 5.6.

1. To adjust the elevating legrest, raise legs until the desired height is obtained.
2. To reposition legrest to normal position, support leg with one hand and push release lever downward with other hand.
3. To adjust the calf pad, turn pad towards the outside of the wheelchair.
4. Slide the calf pad up or down until the desired position is obtained.
5. To secure the calf pad, turn the calf pad towards the inside of the wheelchair.

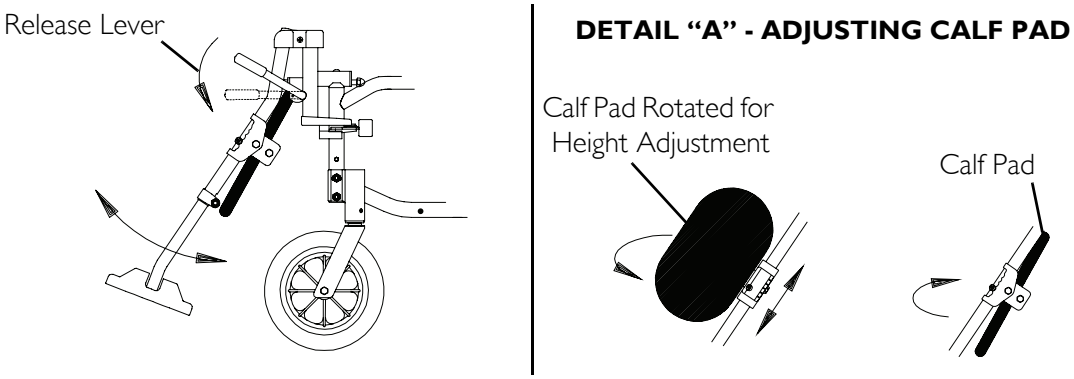


FIGURE 5.6 Adjusting Elevating Legrest

Installing/Adjusting the Adjustable Angle Flip-up Footplates

⚠ WARNING

When determining the angle of the footplates, make sure the rear of the footplates do not interfere with the movement of the front casters.

NOTE: For this procedure, refer to FIGURE 5.7.

Installing Adjustable Angle Flip-up Footplate

1. Slide the half clamp over the footplate hinge.
2. Loosely tighten the two flat screws that secure the footplate to the half clamp.
3. Adjust the footplates to the necessary angle and depth for the user. Refer to the following sections of this procedure.

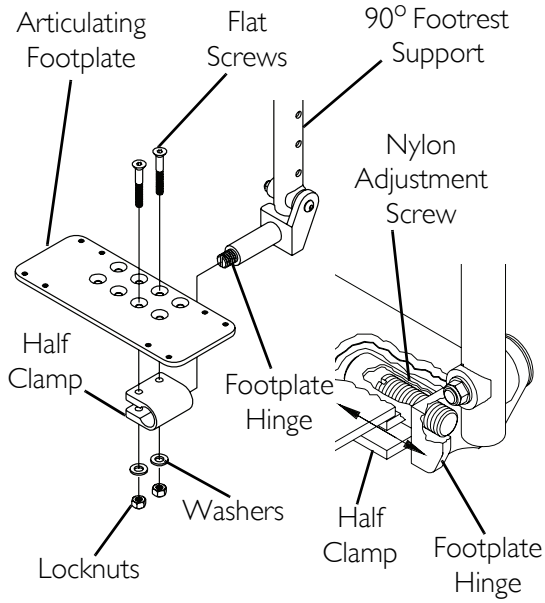


FIGURE 5.7 Installing Adjustable Angle Flip-up Footplate

Adjusting Depth on Adjustable Angle Flip-Up

NOTE: For this procedure, refer to FIGURE 5.8 on page 35.

NOTE: Observe the angle of the articulating footplate for reinstallation.

1. Remove the two flat screws, washers and locknuts that secure articulating footplate to the footplate hinge.
2. Move the articulating footplate to one of four mounting positions.

NOTE: If desired depth is still not obtained, rotate the half clamp on the footplate hinge 180°.

3. Retighten the two flat screws, washers and locknuts.

NOTE: The settings for positioning the articulating footplates on the half-clamps may vary for each footplate.

Adjusting Angle on Adjustable Angle Flip-up Footplate

NOTE: For this procedure, refer to FIGURE 5.8 on page 35.

1. Loosen, but do not remove the two flat screws and locknuts that secure the footplate to the footplate hinge.
2. Position the adjustable angle flip-up footplate to the desired angle.
3. Retighten the two flat screws and locknuts.

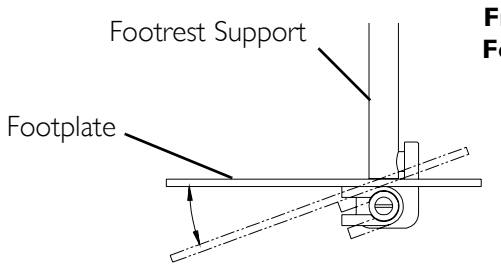


FIGURE 5.8 Adjusting Depth on Adjustable Angle Flip-Up - Adjusting Angle on Adjustable Angle Flip-up Footplate

Adjusting Perpendicular and/or Inversion/Eversion Adjustable Angle Flip-up Footplate

NOTE: For this procedure, refer to FIGURE 5.9.

NOTE: It is not necessary to remove the footplate to perform this adjustment.

1. Insert a flathead screwdriver through the half clamp on the adjustable angle footplate.
2. Slowly turn the nylon adjustment screw in or out until the adjustable angle footplate is perpendicular to the footrest assembly or the desired inversion or eversion is obtained.

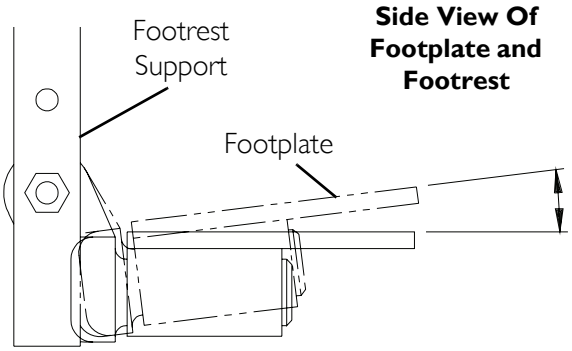


FIGURE 5.9 Adjusting Perpendicular and/or Inversion/Eversion Adjustable Angle Flip-up Footplate

Bilateral Contracture Platform Procedures

⚠ WARNING

The footrest assembly MUST be at least 1-3/4-inches above the ground/floor to avoid hitting protruding objects when using this wheelchair.

NOTE: For this procedure, refer to FIGURE 5.10 on page 36.

Installing Bilateral Contracture Platform

NOTE: If a seating system is being used on the chair, refer to the seating system Owner's Manual for installation and removal of the seating system.

1. Remove the existing seating system from the wheelchair, if so equipped.
2. Remove existing footrest from the wheelchair. Refer to Installing/Removing Front Riggings on page 30.
3. Remove the telescoping tubes from the wheelchair. Refer to Installing/Removing/Adjusting the Telescoping Front Frame Tubes on page 38.

4. Secure the bilateral contracture platform to the seat frame in the mounting position shown in FIGURE 5.10 with the mounting screws and washers provided. Securely tighten.
5. Adjust the bilateral contracture platform to the desired height, angle and depth. Refer to Adjusting Height of Bilateral Contracture Platform on page 36.
6. Install end caps on seat rail.

Removing Bilateral Contracture Platform

1. Remove the mounting screws and washers that secure the bilateral contracture platform to the seat frame.
2. Remove the bilateral contracture platform from the wheelchair.
3. Remove the end caps in the seat rails.
4. Install telescoping tubes. Refer to Installing/Removing/Adjusting the Telescoping Front Frame Tubes on page 38.
5. Install desired footrest. Refer to Installing/Removing Front Riggings on page 30.

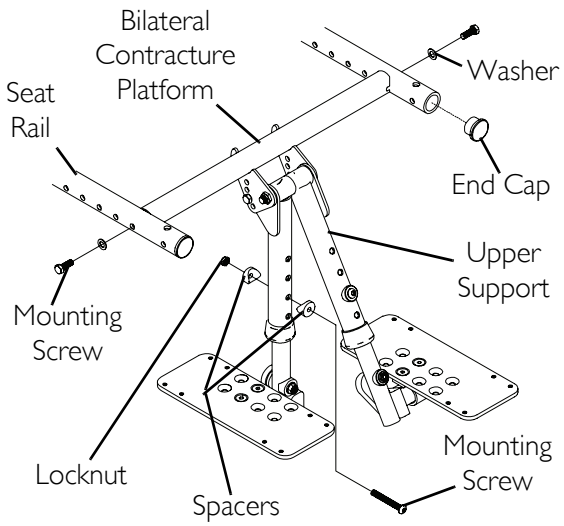


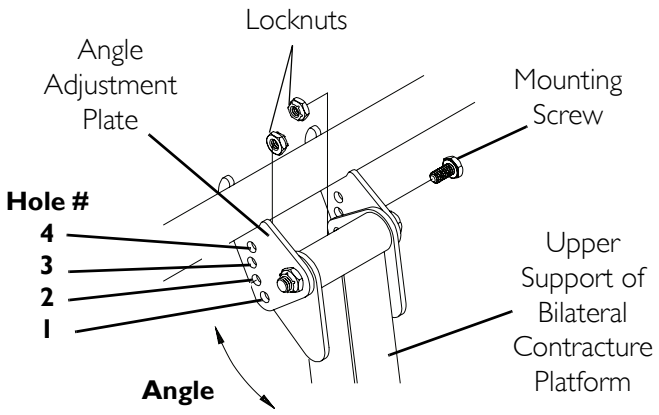
FIGURE 5.10 Bilateral Contracture Platform Procedures

Adjusting Height of Bilateral Contracture Platform

NOTE: For this procedure, refer to FIGURE 5.11 on page 37.

NOTE: The bilateral contracture platform has six height adjustment options with a range of 11-16-inches in height.

1. Remove the mounting screw, spacers and locknut that secure the bilateral contracture platform to the upper support.
2. Slide the bilateral contracture platform up or down to the necessary height.
3. Reinstall the mounting screw, spacers, and locknuts.
4. Securely tighten the mounting screw and locknut that secure the contracture platform to the upper support. Repeat for opposite platform.



NOTE: One mounting screw removed for clarity.

FIGURE 5.11 Adjusting Height of Bilateral Contracture Platform

Adjusting Bilateral Contracture Platform Angle

1. Remove the two mounting screws and locknuts that secure the upper support of the bilateral contracture platform to the angle adjustment plates.
2. Reposition the bilateral contracture platform to one of four positions depending on the angle needed:

HOLE #	1	2	3	4
ANGLE	60°	75°	90°	118°

NOTE: Holes numbered from the bottom of the wheelchair towards the top of the wheelchair for reference only. (There are no numbers on the wheelchair frame.)

3. Reinstall the two mounting screws and locknuts that secure the upper support of the bilateral contracture platform to the angle adjustment plates and securely tighten.

NOTE: If the angle needed is still not obtainable, refer to Adjusting Angle on Adjustable Angle Flip-up Footplate on page 34.

Adjusting Bilateral Contracture Platform Footplate Depth

NOTE: Refer to Adjusting Depth on Adjustable Angle Flip-Up on page 34.

Replacing Sector Block

NOTE: For this procedure, refer to FIGURE 5.12 on page 38.

1. Remove the mounting screw and washer that secure the existing sector block to the wheelchair frame.
2. With locking pin facing up, secure the new sector block to the wheelchair frame with the existing mounting screw and washer. Use Loctite 242® and securely tighten.

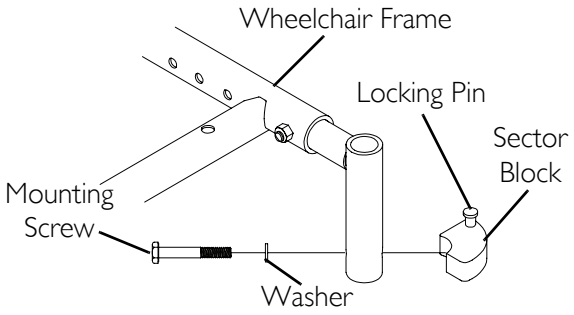


FIGURE 5.12 Replacing Sector Block

Installing/Removing/Adjusting the Telescoping Front Frame Tubes

NOTE: For this procedure, refer to FIGURE 5.13 on page 39.

Installing/Removing Telescoping Front Frame Tubes

1. If necessary, remove the bilateral contracture platform from the wheelchair. Refer to Bilateral Contracture Platform Procedures on page 35.
2. Insert one telescoping tube into seat rail.
3. Adjust to one of three depth positions.
4. Secure with mounting screw and locknut.
5. Repeat STEPS 2-3 for opposite seat rail.
6. To remove, perform the following:
   A. Remove the mounting screw and locknut that secures the telescoping tube to the seat rail.
   B. Remove the telescoping tube from the seat rail.

Adjusting Telescoping Front Frame Tubes

1. Remove the mounting screw and locknut that secures the telescoping tube to the seat rail.
2. Adjust telescoping tube to desired depth.
3. Reinsert mounting screw and secure with locknut.
4. Repeat for opposite telescoping front frame tube.

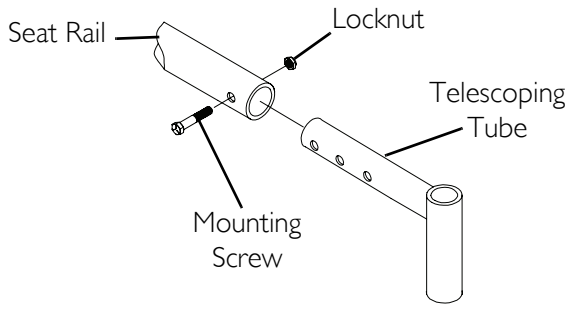


FIGURE 5.13 Installing/Removing/Adjusting the Telescoping Front Frame Tubes

Optional Footrest Accessories

Replacing Heel Loop

Composite Footplates

NOTE: For this procedure, refer to FIGURE 5.14.

1. Remove the mounting screw and coved washer that secures the lower footrest assembly to the swingaway footrest assembly.
2. Remove the lower footrest assembly.
3. Remove the mounting screws and locknuts that secure the heel loop to the footrest.
4. Slide existing heel loop up and off slide tube.
5. Slide new heel loop onto slide tube.
6. Reverse STEPS 1-4 to reassemble.

NOTE: When securing the heel loop to the footrest assembly, tighten the phillips screw and locknut until the spacer is secure.

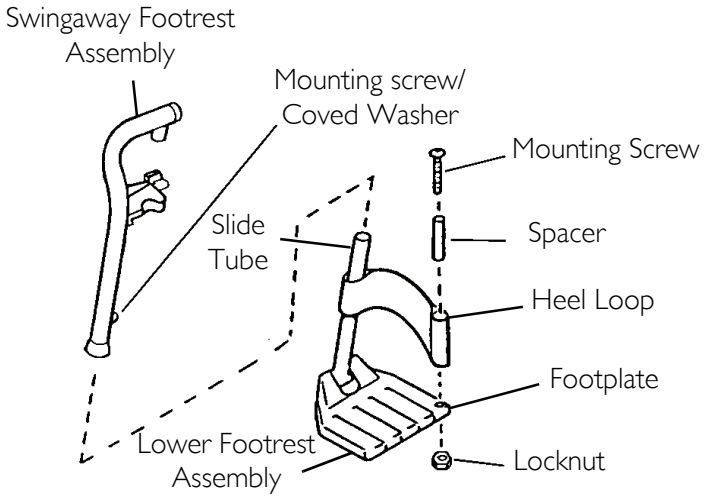


FIGURE 5.14 Replacing Heel Loop - Composite Footplates

Adjustable Footplate

NOTE: For this procedure, refer to FIGURE 5.15.

1. Remove the four mounting screws and washers that secure the existing heel loop to the footplate.
2. Position the mounting holes of the new heel loop with the mounting holes in the adjustable footplate.
3. Secure the new heel loop to the footplate with the four mounting screws and washers.

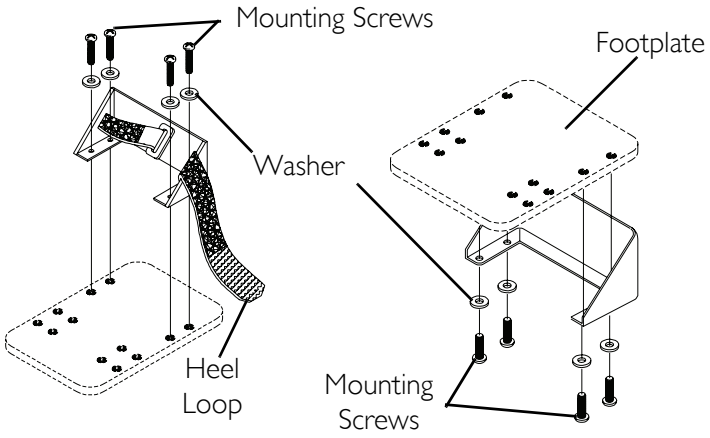


FIGURE 5.15 Replacing Heel Loop - Adjustable Footplate

SECTION 6—ARMS

⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

Installing the T-Arm Sockets

NOTE: For this procedure, refer to FIGURE 6.1.

1. Remove the rear wheels from the wheelchair. Refer to Removing/Installing Rear Wheels on page 61.
2. Position the T-arm socket and T-arm clamp on the wheelchair frame as shown in FIGURE 6.1.

NOTE: The T-arm socket must be positioned on the outside of the wheelchair frame.

3. Install the three mounting screws and washers through the T-arm clamp, wheelchair frame and T-arm socket and loosely tighten.
4. Tighten the mounting screws and washers that secure the T-arm mounting socket to the wheelchair frame in the following sequence:
   A. Middle mounting screw and washer.
   B. The two outside mounting screws and washers.
   C. Torque all three mounting screws to 156-inch pounds.

NOTE: Make sure the hex bolts are torqued to 156-inch pounds, otherwise the T-arm sockets will be capable of rotating around the wheelchair frame.

NOTE: If desired, locking pins can be installed to secure the T-arm brackets to the wheelchair frame, as shown in FIGURE 6.1.

5. Repeat STEPS 2- 4 for the opposite side of the wheelchair.
6. Install the T-arms into the T-arm sockets. Refer to Installing/Removing the T-arms on page 42.

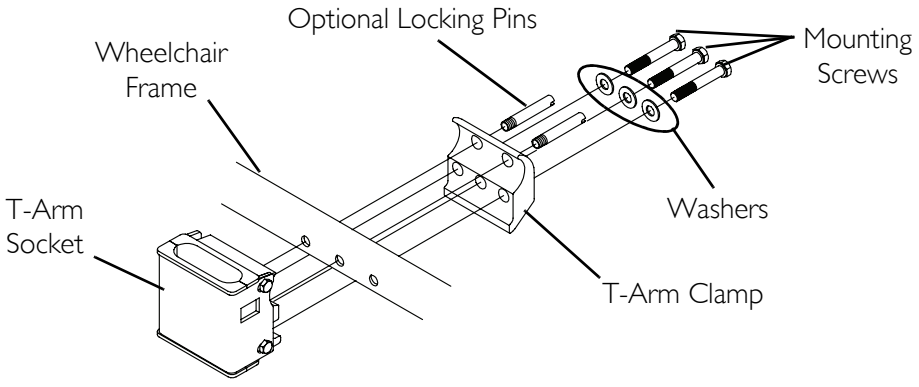


FIGURE 6.1 Installing the T-Arm Sockets

Installing/Removing the T-arms

NOTE: For this procedure, refer to FIGURE 6.2.

Installing T-Arms

1. Position the T-arm over the T-arm socket on the wheelchair frame.

NOTE: Make sure the locking lever is towards the front of the wheelchair.

2. Slide the T-arm into the T-arm socket until the locking lever is in the slot in the T-arm socket and an audible "click" is heard.
3. Pull up on the T-arm to make sure the T-arm is locked in place.

NOTE: If the T-arm does not slide in the T-arm socket as desired, adjust the T-arm socket. Refer to Adjusting the T-Arms on page 43.

4. Adjust the T-arm for desired height, width and depth, if necessary. Refer to Adjusting the T-Arms on page 43.
5. Repeat STEPS 1-4 for the opposite side of the wheelchair.

Removing T-Arms

1. Press in on the locking lever and lift the T-arm straight up and out of the T-arm socket.

NOTE: If the T-arm does not slide up and down in the T-arm socket as desired, adjust the T-arm socket. Refer to Adjusting the T-Arms on page 43.

2. Repeat STEP 1 for the opposite side of the wheelchair.

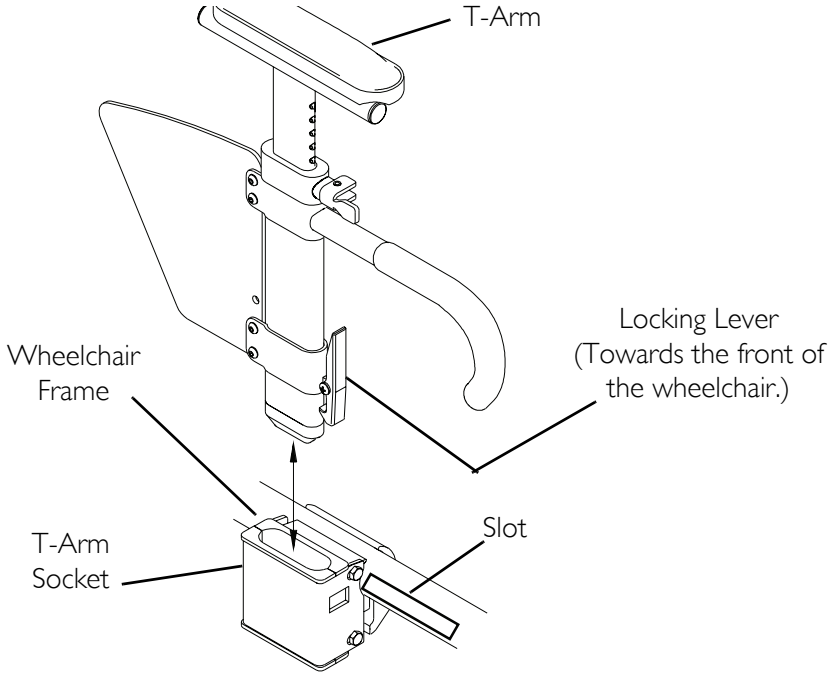


FIGURE 6.2 Installing/Removing the T-arms

Adjusting the T-Arms

Adjusting T-Arm Height

NOTE: For this procedure, refer to FIGURE 6.3.

1. Unlock the T-arm by flipping the T-arm release lever towards the inside of the wheelchair.

NOTE: If necessary, pull out on the T-arm release lever and rotate 180^0 so it can be flipped towards the outside of the wheelchair.

2. Slide the inside T-arm post to one of the following:
   - For Low Height T-arms - Nine positions.
   - For High Height T-arms - Seven positions.

NOTE: If the inside T-arm post does not slide up and down in the outside T-arm post as desired, perform one of the following:

- Tighten - Tightening the set screws on the outside T-arm post will make it harder to move the inside T-arm post up and down.
- Loosen - Loosening the set screws on the outside T-arm post will make it easier to move the inside T-arm post up and down.

3. Lock the T-arm by flipping the T-arm release lever towards the front of the wheelchair.

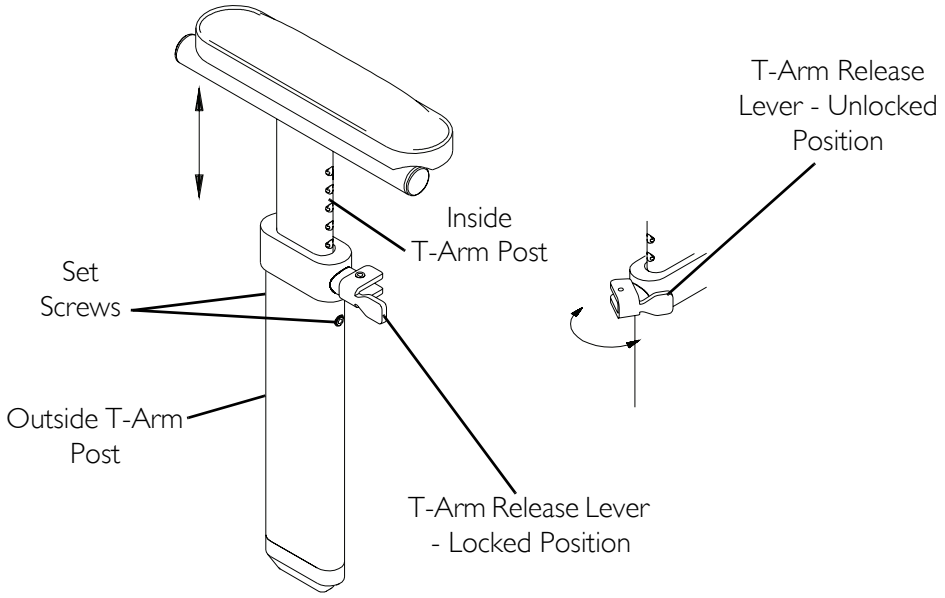


FIGURE 6.3 Adjusting the T-Arms - Adjusting T-Arm Height

Adjusting T-Arm Width

NOTE: For this procedure, refer to FIGURE 6.4 on page 44.

1. Remove the two mounting screws that secure the arm pad to the arm tube.

2. Rotate the arm pad 180° and reposition the arm pad on the arm tube.
3. Re-secure the arm pad to the arm tube with the two mounting screws. Securely tighten.
4. Repeat STEPS 1-3 for the opposite side, if necessary.

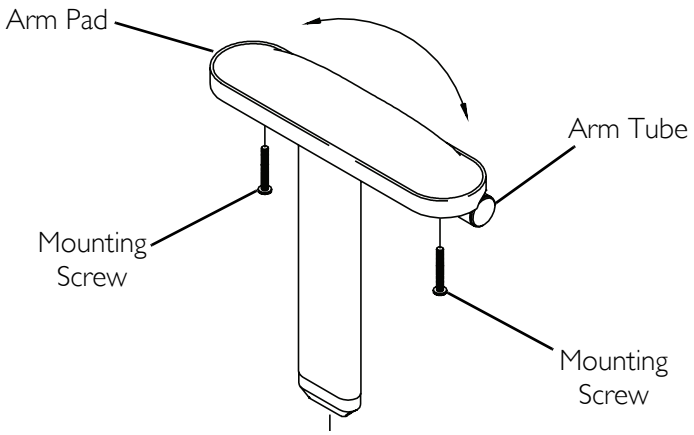


FIGURE 6.4 Adjusting the T-Arms - Adjusting T-Arm Width

Adjusting T-Arm Depth

NOTE: For this procedure, refer to FIGURE 6.5 on page 45.

1. Remove the two mounting screws that secure the arm pad to the arm tube.
2. Remove the two mounting screws that secure the arm tube to the T-arm post.
3. Reposition the arm tube on the T-arm post:
   A. Desk Length Arms - to one of three positions depending on the desired arm pad depth.
   B. Full Length Arms - to one of five positions depending on the desired arm pad depth.

NOTE: Additional positions are obtainable by turning the arm tube 180°.

4. Re-secure the arm tube to the T-arm post with the two mounting screws. Securely tighten.
5. Reattach the arm pad to the arm tube with the two mounting screws. Securely tighten.
6. Repeat STEPS 1-5 for the opposite side, if necessary.

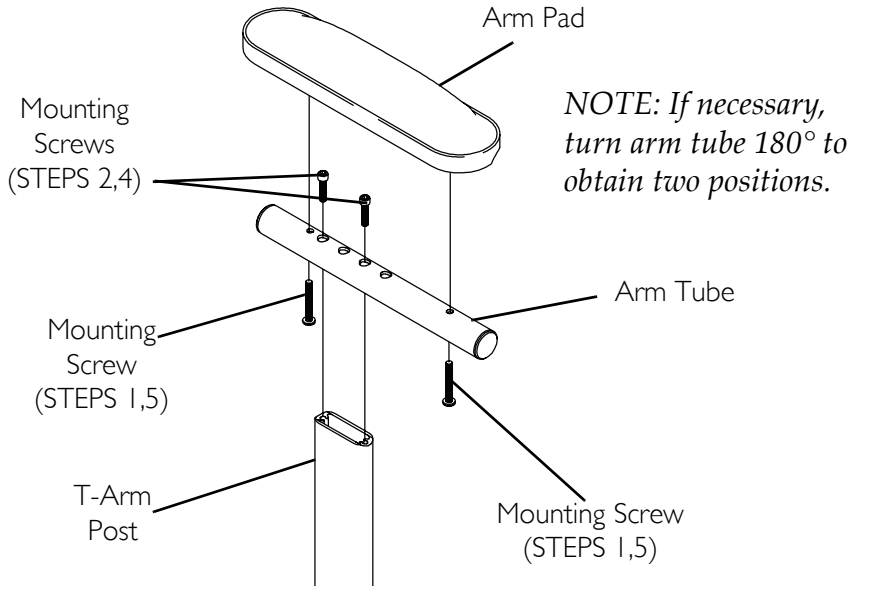


FIGURE 6.5 Adjusting the T-Arms - Adjusting T-Arm Depth

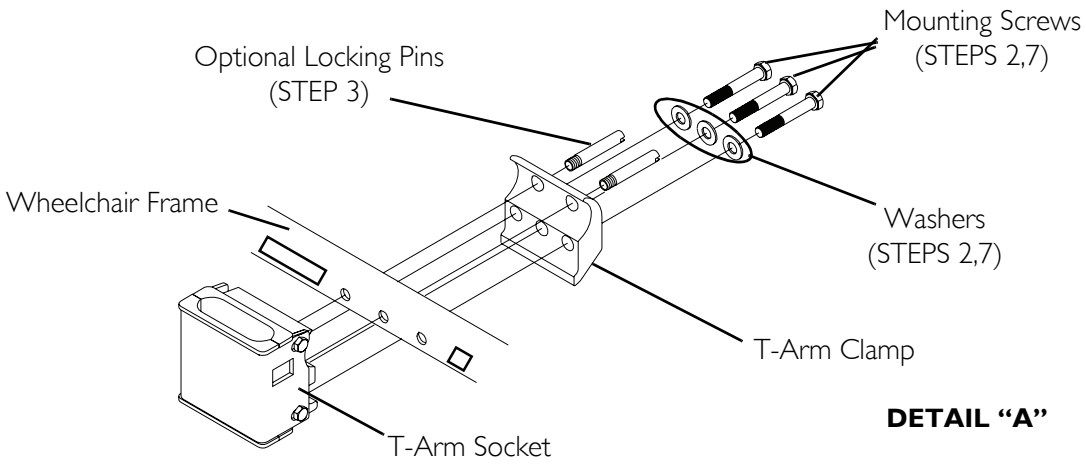
Adjusting T-Arm Sockets

NOTE: For this procedure, refer to FIGURE 6.6.

1. Remove the rear wheels from the wheelchair. Refer to Removing/Installing Rear Wheels on page 61.
2. Remove the three mounting screws and washers that secure the T-arm socket and T-arm clamp to the wheelchair frame and remove the T-arm socket from the wheelchair.
3. If equipped with optional locking pins, remove the locking pins that secure the T-arm socket to the wheelchair frame.
4. Loosen, but do not remove the four mounting screws and washers that secure the T-arm socket together.

NOTE: The T-arm socket will disassemble if the four mounting screws and washers are removed.

5. Slide the T-arm into the T-arm socket until the lock lever is in the slot in the T-arm socket and an audible "click" is heard.
6. Squeeze the T-arm socket together until the socket is flush with the T-arm.
7. While holding the T-arm socket together, tighten the four mounting screws and washers securely.
8. Press in on the locking lever and lift the T-arm straight up and out of the T-arm socket.
9. Repeat STEPS 5-7, if necessary until the T-arm slides in the T-arm socket as desired.
10. Reinstall the T-arm socket onto the wheelchair. Refer to Installing the T-Arm Sockets on page 41.



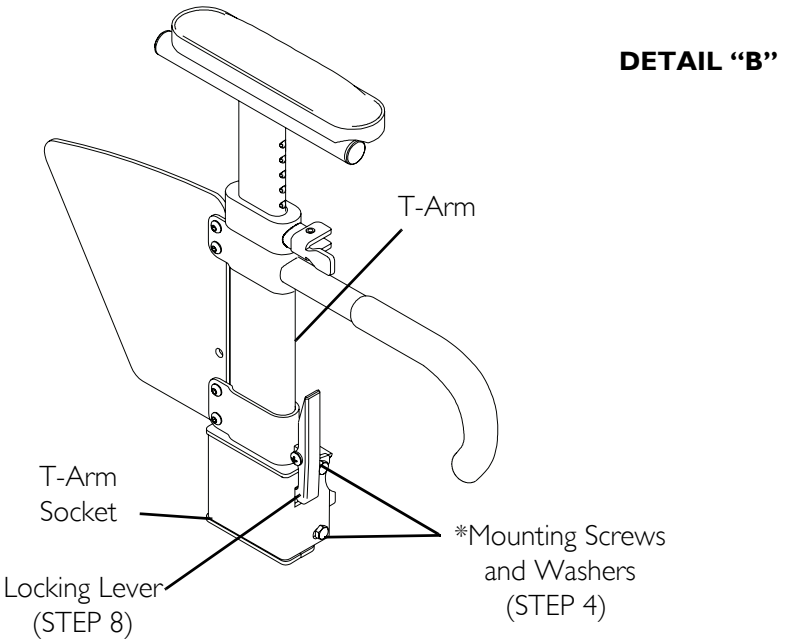


FIGURE 6.6 Adjusting the T-Arms - Adjusting T-Arm Sockets

Adjusting the Transfer Assists and/or Side Guards

NOTE: For this procedure, refer to FIGURE 6.7 on page 47.

1. Remove the T-arm from the wheelchair. Refer to Installing/Removing the T-arms on page 42.
2. Remove the two bottom mounting screws that secure the side guard to the bottom clamp.
3. Perform one of the following:
   - Small Side Guards - Move the bottom clamp up one of two mounting positions in the side guard.
   - Large Side Guards - Move the bottom clamp up one of three mounting positions in the side guard.

4. Re-secure the side guard to the bottom clamp with the two bottom mounting screws. Securely tighten.
5. Install the T-arm onto the wheelchair. Refer to Installing/Removing the T-arms on page 42.

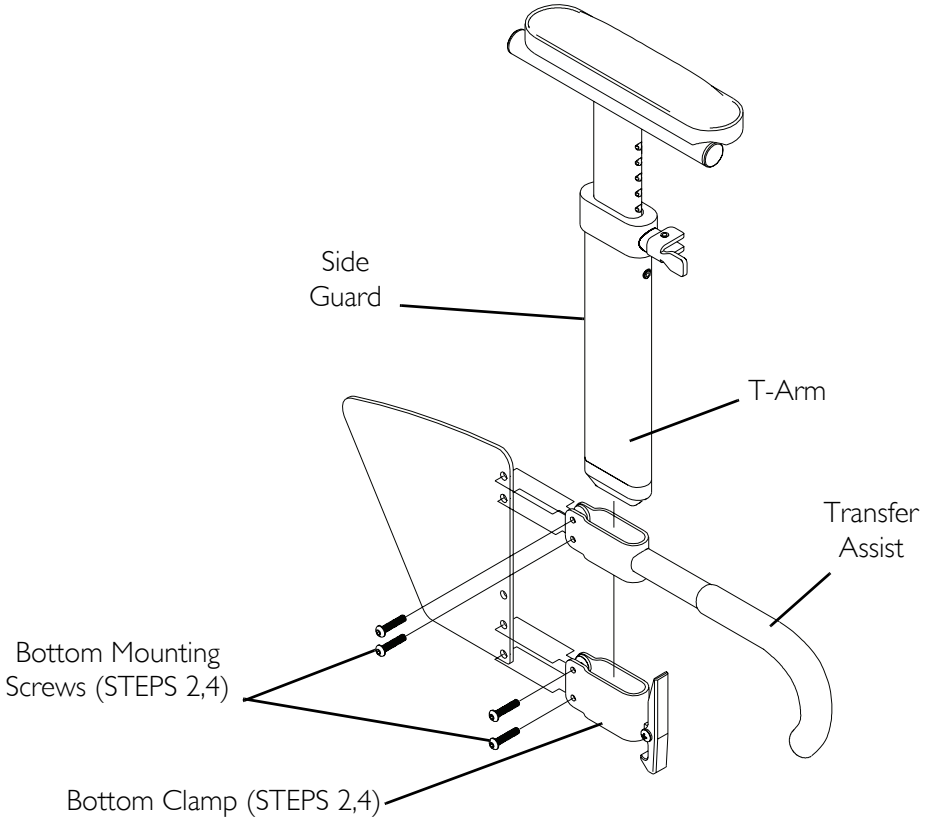


FIGURE 6.7 Adjusting the Transfer Assists and/or Side Guards

Replacing the T-Arm Locking Lever

NOTE: For this procedure, refer to FIGURE 6.8 on page 48.

1. Remove the T-arm from the wheelchair. Refer to Installing/Removing the T-arms on page 42.
2. Remove the phillips bolt and locknut that secure the existing locking lever to the bottom bracket.

NOTE: The locking lever is spring loaded. Place your free hand over the locking lever to prevent the parts from springing off of the bottom bracket.

3. Remove the existing locking lever and spring from the bottom bracket.

NOTE: Inspect the spring for wear and damage. Replace if necessary.

4. Position the spring on the bottom bracket as shown in FIGURE 6.8.
5. Position the new locking lever onto the spring and the bottom bracket.

NOTE: Make sure the two extended ends of the spring are inside the notch in the locking lever.

6. Line up the mounting holes in the new locking lever, spring and bottom bracket.

⚠ WARNING

DO NOT over tighten the locknut that secures the locking lever to the bottom bracket. Over tightening this locknut will prevent the locking lever from operating properly, possibly causing injury.

7. Install the phillips bolt and tighten securely with the locknut.
8. Install the T-arm onto the wheelchair. Refer to Installing/Removing the T-arms on page 42.

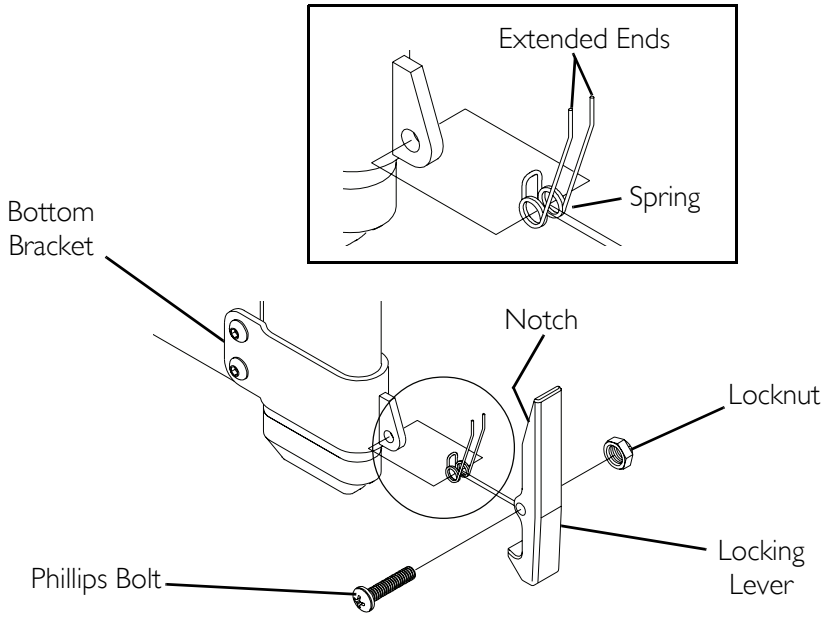


FIGURE 6.8 Replacing the T-Arm Locking Lever

Using/Installing/Adjusting Cantilever Arms

NOTE: For this procedure, refer to FIGURE 6.9 on page 49.

NOTE: Cantilever arms are available on non-recliner models only.

Using Catilever Arms

1. Pull the actuator of the locking mechanism towards the front of the wheelchair.
2. While holding the actuator of the locking mechanism, pull up on the cantilever arm.

NOTE: If necessary, the locking mechanism in the cantilever arm can be repositioned so the cantilever arm will open down instead of up. Refer to Replacing/Repositioning the Locking Mechanism in the Cantilever Arm on page 50.

3. To lock the cantilever arm, push down until there is an audible click.
4. Pull up on the cantilever arm to make sure it is locked in place.

Installing/Removing/Adjusting Catilever Arms

NOTE: To remove, reverse this procedure.

NOTE: When removing the locknuts and washers from the cantilever arm assembly, leave the top mounting screw, coved washers and spacer (between adjustment plate and cantilever arm) in place.

1. Slide the partially assembled cantilever arm assembly with mounting hardware through the back cane. Make sure the adjustment plate is towards the inside of the wheelchair.

NOTE: This includes top mounting screw, coved washers and spacer (between adjustment plate and cantilever arm).

2. Slide the bottom mounting screw (with coved washer) through the adjustment plate and back cane.
3. Securely tighten the cantilever arm to the wheelchair with two locknuts and washers.

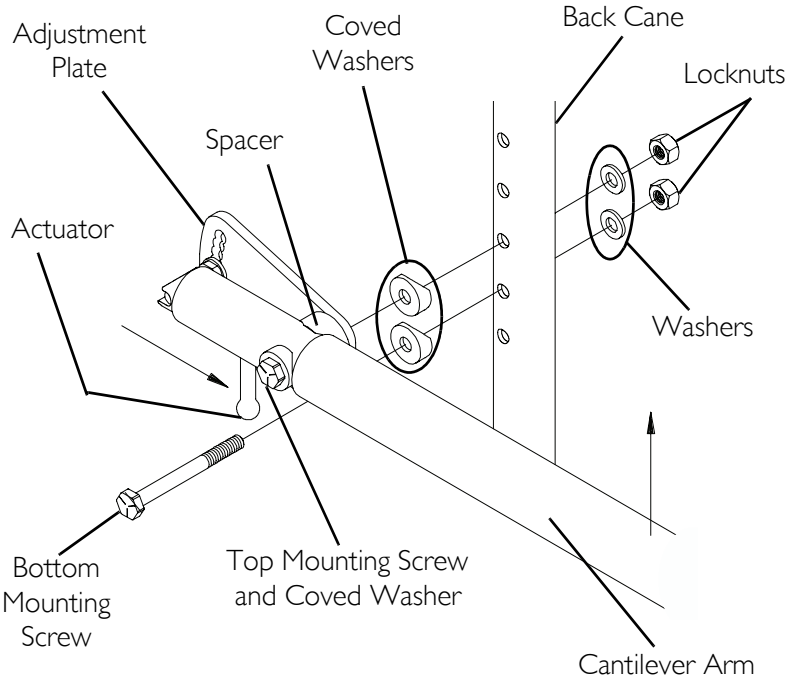


FIGURE 6.9 Using/Installing/Adjusting Cantilever Arms

Replacing/Repositioning the Locking Mechanism in the Cantilever Arm

NOTE: For this procedure, refer to FIGURE 6.10 on page 50.

CAUTION

The locking mechanism is spring loaded. Place your free hand over the locking mechanism to prevent parts from springing out of the armrest.

1. Move the cantilever arm up and out of the way.
2. Unthread the actuator from the locking mechanism and remove.
3. Slowly let the locking mechanism and spring slide out of the cantilever arm.

NOTE: Inspect the spring for wear and damage. Replace if necessary.

4. Slide the new locking mechanism and spring into the cantilever arm.
5. Position the angled portion of the locking mechanism in one of two ways:
   - Angled Portion Facing Up - Arm will flip up
   - Angled Portion Facing Down - Arm will flip down
6. Use Loctite 242 and securely tighten the actuator into the locking mechanism.
7. To lock the cantilever arm, push down (or pull up) until there is an audible click.
8. Pull up (or push down) on the cantilever arm to make sure it is locked in place.

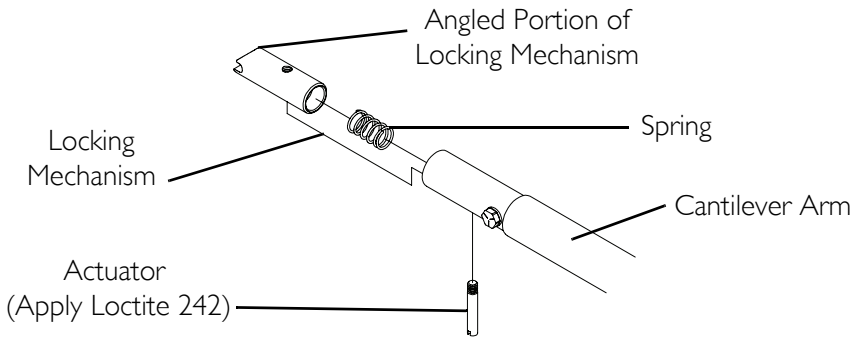


FIGURE 6.10 Replacing/Repositioning the Locking Mechanism in the Cantilever Arm

Replacing and Adjusting Arm Pad Depth for Cantilever Arms

NOTE: For this procedure, refer to FIGURE 6.11.

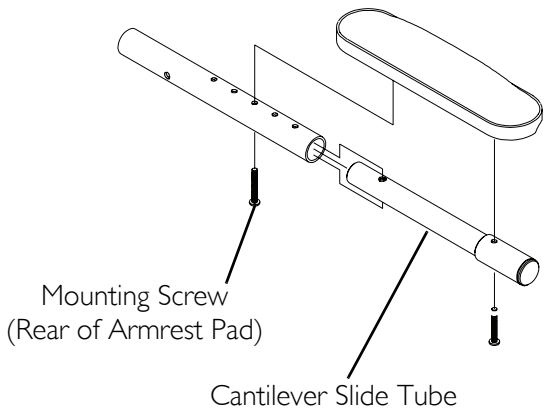
Adjustment

1. Remove the mounting screw from the rear of the armrest pad and self-taping screw if full length arm pads.
2. Depending on the desired arm pad depth, reposition the cantilever slide tube to one of five positions for desk length arm pads and into the first adjustment hole for the full length arm pads.
3. Reattach the arm pad/cantilever slide tube to the arm tube with existing hardware.
4. Repeat for the opposite side, if necessary.

Replacement

1. Remove the mounting screws from the armrest pad.
2. Replace with new armrest pad.
3. Secure with existing hardware.

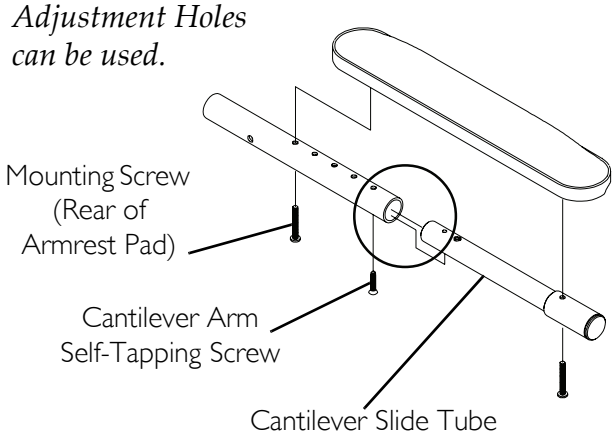
DETAIL "A" - DESK LENGTH ARM PADS



NOTE: This mounting screw only needs to be removed when armrest pad is replaced.

DETAIL "B" - FULL LENGTH ARM PADS

NOTE: Only these Adjustment Holes can be used.



NOTE: This mounting screw only needs to be removed when armrest pad is replaced.

FIGURE 6.11 Replacing and Adjusting Arm Pad Depth for Cantilever Arms

SECTION 7—SEAT AND BACK

⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

NOTE: The procedures in this section of the manual apply to non-recliner seat frames only except where noted.

Replacing the Locking Mechanism in the Back Cane

CAUTION

The locking mechanism in the back canes is spring loaded. Slowly remove the back canes from the wheelchair to prevent the springs from being lost.

NOTE: For this procedure, refer to FIGURE 7.1.

1. Fold the back canes down and out of the way. Refer to Folding/Unfolding the Back Canes on page 56.
2. Twist the actuator counterclockwise to remove from the locking mechanism.
3. Slowly let the locking mechanism and spring slide out of the back cane.

NOTE: Inspect the spring for wear and damage. Replace if necessary.

4. Slide the new locking mechanism and spring into the back cane.
5. Make sure the angled end of the locking mechanism is pointing up towards the locking pin on the adjustment plate.
6. Use Loctite™ 242, on threads only, and securely tighten the actuator into the locking mechanism.
7. Unfold the back canes. Refer to Folding/Unfolding the Back Canes on page 56.

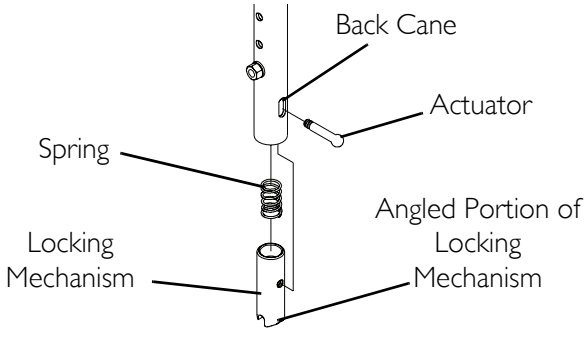


FIGURE 7.1 Replacing the Locking Mechanism in the Back Cane

Installing Fixed Height Stroller Handles

NOTE: For this procedure, refer to FIGURE 7.2.

1. Remove the back cane grip and plug button from the back cane.
2. Slide the stroller handle into the back cane.
3. Align the mounting holes of the stroller handle and the back cane.
4. Press the button on the quick-release pin and insert the quick-release pin through the back cane and stroller handle.
5. Repeat STEPS 1-4 for the opposite stroller handle.
6. Pull on the stroller handle to make sure it is locked securely in place

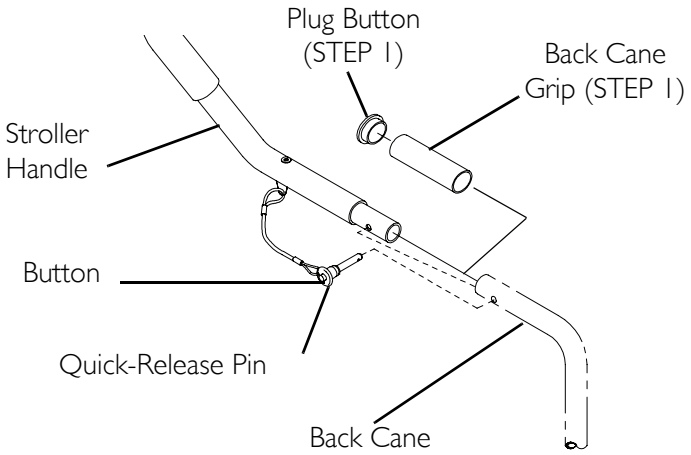


FIGURE 7.2 Installing Fixed Height Stroller Handles

Installing/Removing/Adjusting the Adjustable Angle Stroller Handles

NOTE: Stroller handles install in the same manner for recliner and non-recliner models.

Installing Adjustable Angle Stroller Handles

NOTE: For this procedure, refer to FIGURE 7.3 on page 54.

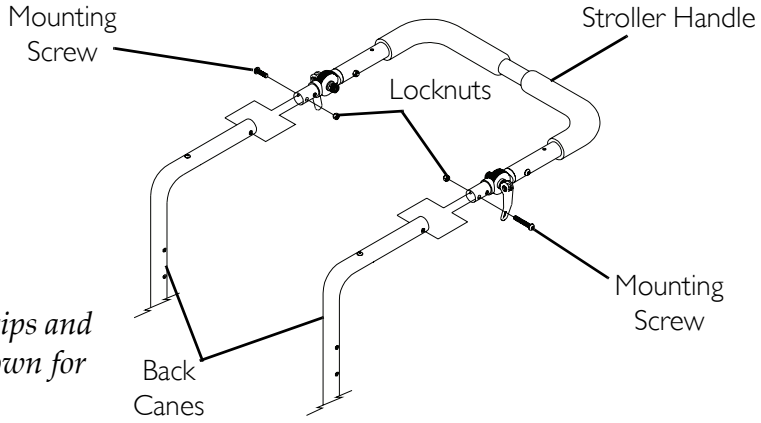
1. Remove the back cane grips and plug buttons from both back canes.

NOTE: Plug buttons found only on recliners.

2. Slide the adjustable height stroller handle into the back canes.
3. Align the mounting holes of the adjustable height stroller handle and the back cane.
4. Secure adjustable height stroller handle to the back canes with the two mounting screws provided. Securely tighten.
5. If necessary, adjust the height. Refer to Adjusting Adjustable Angle Stroller Handles on page 54.

Removing Adjustable Angle Stroller Handles

1. Remove the two mounting screws that secure the adjustable height stroller handle to the back canes.
2. Remove the adjustable angle stroller handle from the back cane.
3. Install back cane grips and/or plug buttons.



NOTE: Back cane grips and plug buttons not shown for clarity.

FIGURE 7.3 Installing Adjustable Angle Stroller Handles - Removing Adjustable Angle Stroller Handles

Adjusting Adjustable Angle Stroller Handles

NOTE: For this procedure, refer to FIGURE 7.4 on page 55.

NOTE: Stroller handles adjust in the same manner for recliner and non-recliner models.

1. Flip both release levers to the unlocked position.
2. Adjust stroller handle to desired height.
3. Flip both release levers to the locked position.
4. Push down on stroller handle to ensure release levers hold the desired position of the stroller handle.
5. If release levers DO NOT hold the position, tighten the release lever by performing the following:

   A. Flip release lever to the unlocked position.

   B. Rotate thumbscrew clockwise one revolution.

   NOTE: When tightening the release lever, the release lever must be able to close completely into the locked position. Otherwise, the release levers will not hold the desired angle

   C. Flip release lever to locked position.

   NOTE: If the release lever does not close completely into the locked position, rotate the thumbscrew counterclockwise 1/2 revolution.

   D. Repeat STEPS A-C for opposite release lever.

   E. Push down on stroller handle to ensure release levers hold the desired position of the stroller handle.

   F. Repeat STEPS A-E until release levers hold the position.

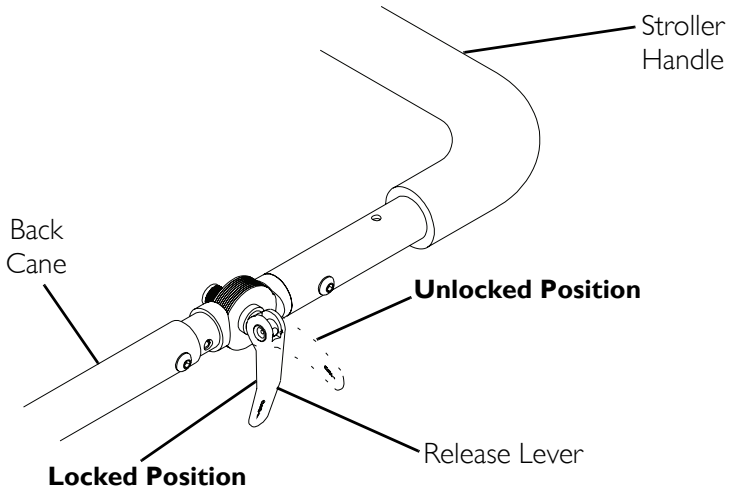


FIGURE 7.4 Adjusting Adjustable Angle Stroller Handles

Removing/Installing the Spreader Bar

NOTE: For this procedure, refer to FIGURE 7.5 on page 56.

NOTE: For removing and installing the spreader bar on the recliner back option, refer to Engaging Tilt-In-Space on page 70.

NOTE: Make sure the spreader bar is ALWAYS attached to the wheelchair.

NOTE: If a seating system is being used on the chair, refer to the seating system Owner's Manual for installation and removal of the seating system.

1. Remove the existing seating system from the wheelchair, if so equipped.
2. Separate back assembly from the back angle brackets by removing the mounting screws, coved spacers, washers, and locknuts.
3. If necessary, remove the cantilever arms from the back assembly. Refer to Installing/Removing/Adjusting Catilever Arms on page 49.
4. Remove the locking mechanisms in the back canes. Refer to Replacing/Repositioning the Locking Mechanism in the Cantilever Arm on page 50.
5. Loosen, but DO NOT remove the two set screws that secure the existing spreader bar to the back canes.
6. Slide the existing spreader bar off of the two back canes.
7. Slide the new spreader bar onto the back canes.

NOTE: Make sure the spreader bar is positioned on the back canes so not to interfere with the back angle brackets.

8. Securely tighten the two set screws that secure the new spreader bar to the back canes.
9. Reinstall the cantilever arms, if necessary. Refer to Installing/Removing/Adjusting Catilever Arms on page 49.

CAUTION

When reattaching back assembly, DO NOT OVERTIGHTEN! Back will not fold down properly. Tighten hardware until snug.

10. Reattach back assembly to the back angle bracket with the existing mounting screws, spacers, washers, and locknuts. DO NOT overtighten. Wheelchair will not fold properly. Tighten until a snug fit is provided.
11. Reinstall the locking mechanisms in the back canes. Refer to Replacing/Repositioning the Locking Mechanism in the Cantilever Arm on page 50.

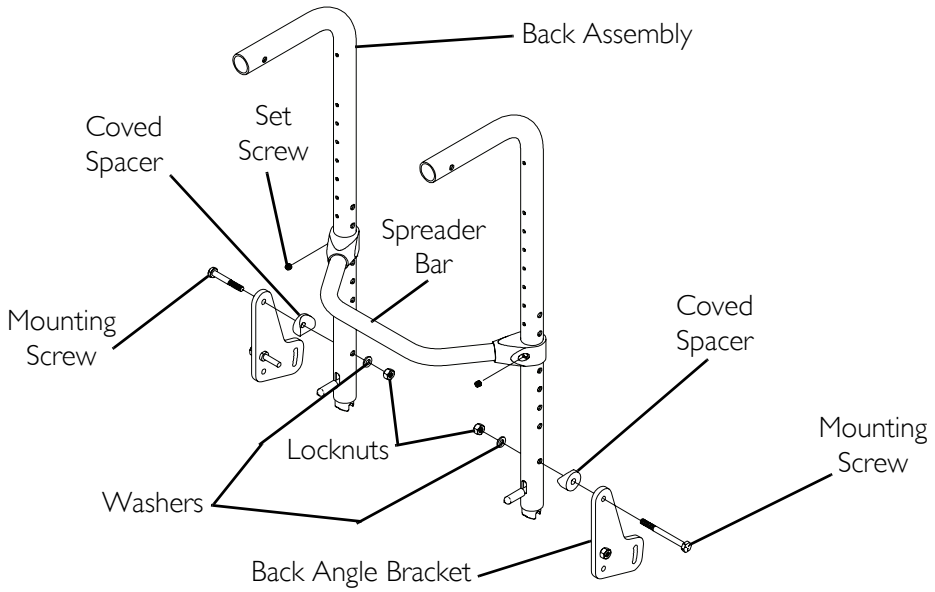


FIGURE 7.5 Removing/Installing the Spreader Bar

Folding/Unfolding the Back Canes

NOTE: For this procedure, refer to FIGURE 7.6

1. To fold back canes, lift up on actuator pins and fold back canes forward.
2. To unfold back canes, pull back canes up until actuator pins are locked in place.

NOTE: Actuator pins are locked in place when an audible click is heard.

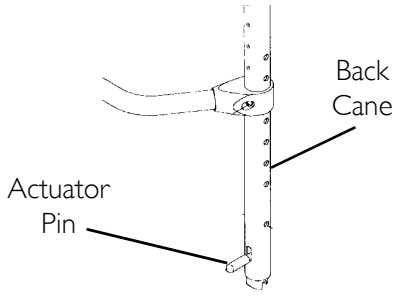


FIGURE 7.6 Folding/Unfolding the Back Canes

Installing/Removing a Seating System

NOTE: If a seating system is being used on the wheelchair, refer to your particular seating system manufacturer's Owner's Manual for installation and removal of the seating system.

Removing/Installing the Seat Pan

NOTE: For this procedure, refer to FIGURE 7.7.

NOTE: Only perform this procedure if changing to a new seat pan of the exact same width and depth.

Removing

NOTE: If a seating system is being used on the wheelchair, refer to your particular seating system manufacturer's Owner's Manual for installation and removal of the seating system.

1. Remove seating system from wheelchair.
2. Remove the four mounting screws that secure the seat pan to the seat rails.
3. Remove existing seat pan and discard.

Installing

1. Position the new seat pan on seat rails.
2. Secure with the existing four mounting screws. Securely tighten.
3. Reinstall seating system onto wheelchair.

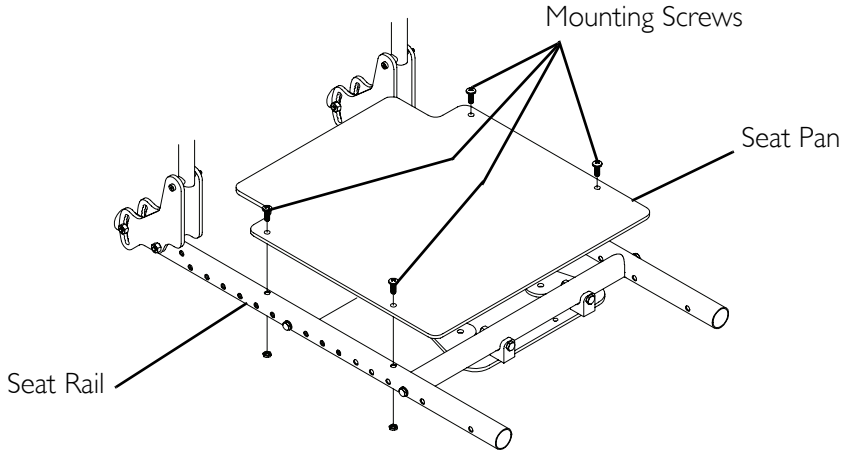


FIGURE 7.7 Removing/Installing the Seat Pan

SECTION 8—FRONT CASTERS

⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

CAUTION

DO NOT overtighten hardware attaching to the frame. Damage to components may occur.

Replacing/Installing Front Caster Assemblies

⚠ WARNING

The seat height, seat depth, back angle, pivot point of seat frame, seating system, caster position, size and position of the rear wheels, as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the nine may cause the wheelchair to decrease in stability. These adjustments MUST be performed by a qualified technician.

NOTE: For this procedure, refer to FIGURE 8.1.

1. Remove the mounting screw, spacers and locknut that secure the front caster to the fork.
2. Remove the front caster from the fork.

NOTE: If replacing a front caster on a six or eight inch front fork, note the mounting position of the existing front caster for installation of the new front caster.

NOTE: If repositioning front casters on a six or eight inch front fork, Invacare recommends that this procedure be performed by an authorized Invacare dealer or qualified technician.

3. Replace front caster and reverse STEPS 1- 2.

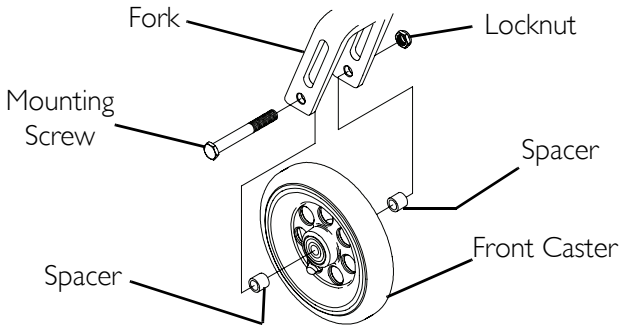


FIGURE 8.1 Replacing/Installing Front Caster Assemblies

Replacing Front Fork

NOTE: For this procedure, refer to FIGURE 8.2.

1. Remove the front caster assemblies from the wheelchair. Refer to Replacing/Installing Front Caster Assemblies on page 58.
2. Remove the dust cover.
3. Remove the locknut and nylon washer.
4. Drop the existing fork out of the caster head tube.
5. Slide the new fork into the caster head tube.

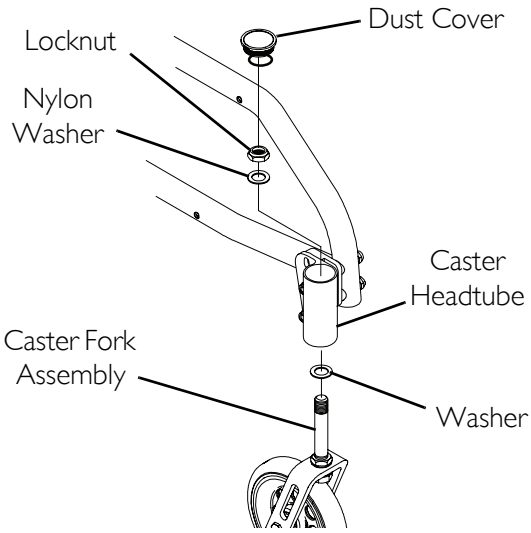
NOTE: Check bearing assemblies and replace if necessary.

6. Ensure that fork slides completely into the caster head tube.

⚠ WARNING

Improper positioning of the washer will prohibit the free movement of the forks and may result in injury to the user.

7. Install nylon washer and secure with locknut.
8. Reinstall the front caster assemblies onto the wheelchair. Refer to Replacing/Installing Front Caster Assemblies on page 58.
9. To properly tighten caster journal system and guard against flutter, perform the following check:
   A. Tip front of wheelchair off floor.
   B. Pivot forks and casters to top of their arc simultaneously.
   C. Let casters drop to bottom of arc (wheels should swing once to one-side, then immediately rest in a straight downward position).
   D. Adjust locknuts according to freedom of caster swing.
   E. Test wheelchair for maneuverability.
10. Reinstall dust cover.



NOTE: Five-inch front caster shown only for clarity.

FIGURE 8.2 Replacing Front Fork

Adjusting Caster Headtubes

NOTE: For this procedure, refer to FIGURE 8.3.

NOTE: Caster headtubes that are perpendicular to the floor will roll better, track straighter and minimize any "3-wheeling" of the wheelchair.

1. Make sure the wheelchair is on a flat surface.
2. Loosen, but do not remove the top mounting screw and locknut, which holds the adjustment cam in place, and secures the caster headtube to the headtube mounting plate.
3. Position a large right triangle or "L" square on the flat surface and against the caster headtube.
4. Move the caster headtube back and forth until the caster headtube is perpendicular to the ground/floor.
5. While holding the caster headtube perpendicular to the ground/floor, securely tighten the top mounting screw securing the adjustment cam in place to the headtube mounting plate.
6. Make sure the caster headtube is still perpendicular to the ground/floor by placing the large right triangle or "L" square on the flat surface and against the caster headtube.
7. Securely tighten the bottom mounting screw and locknut that secure the caster headtube to the headtube mounting plate.

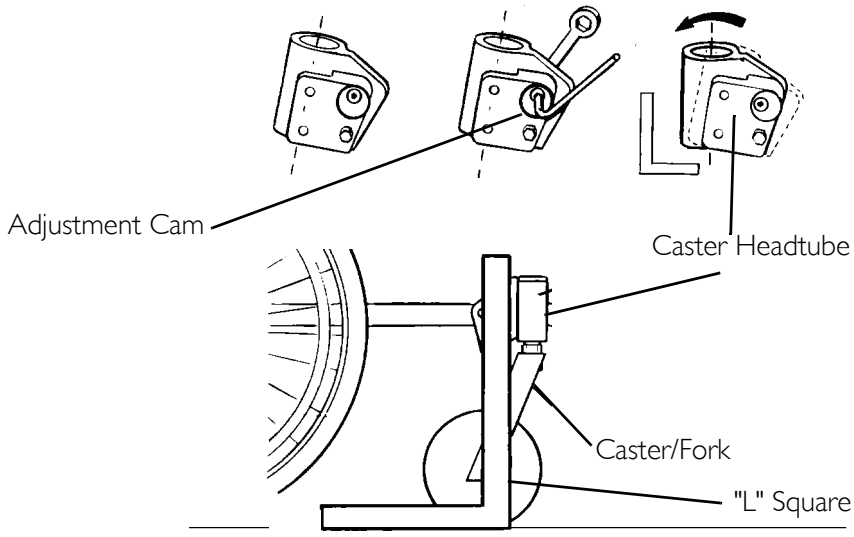


FIGURE 8.3 Adjusting Caster Headtubes

SECTION 9—REAR WHEELS

⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

Removing/Installing Rear Wheels

NOTE: For this procedure, refer to FIGURE 9.1 on page 62.

Quick-Release Axles

1. Push in the detent pin (tip) of the quick-release axle.
2. While holding the rear wheel, pull the quick-release axle out of the axle bushing.
3. Push in the tip of the quick-release axle again and pull the quick-release axle out of the rear wheel.
4. Repeat STEPS 1-3 for the opposite rear wheel.
5. To reinstall the rear wheel onto the axle mounting plate, reverse STEPS 1-3.

⚠ WARNING

Make sure the detent pin and locking pins of the quick-release axle are fully released before operating the wheelchair.

The locking pins MUST be protruding past the inside of the rear wheel axle bushing for a positive lock.

Keep locking pins clean.

6. If the locking pins are not protruding past the inside of the axle bushing or there is too much movement of the rear wheel assembly in a back and forth position, refer to Adjusting the Quick-Release Axle on page 62.

NOTE: During contact activities, Invacare recommends inserting quick-release axles with the detent pin (tip) to the inside of the wheelchair to prevent accidental release.

Permanent Axles

1. Remove the mounting screw and locknut that secure the rear wheel to the axle mounting plate.
2. Loosely install the locknut onto the mounting screw.
3. Repeat STEPS 1-2 for the opposite rear wheel.

NOTE: When reinstalling rear wheels, securely tighten the locknuts.

4. To reinstall the rear wheels onto the axle mounting plate, reverse STEPS 1-2.

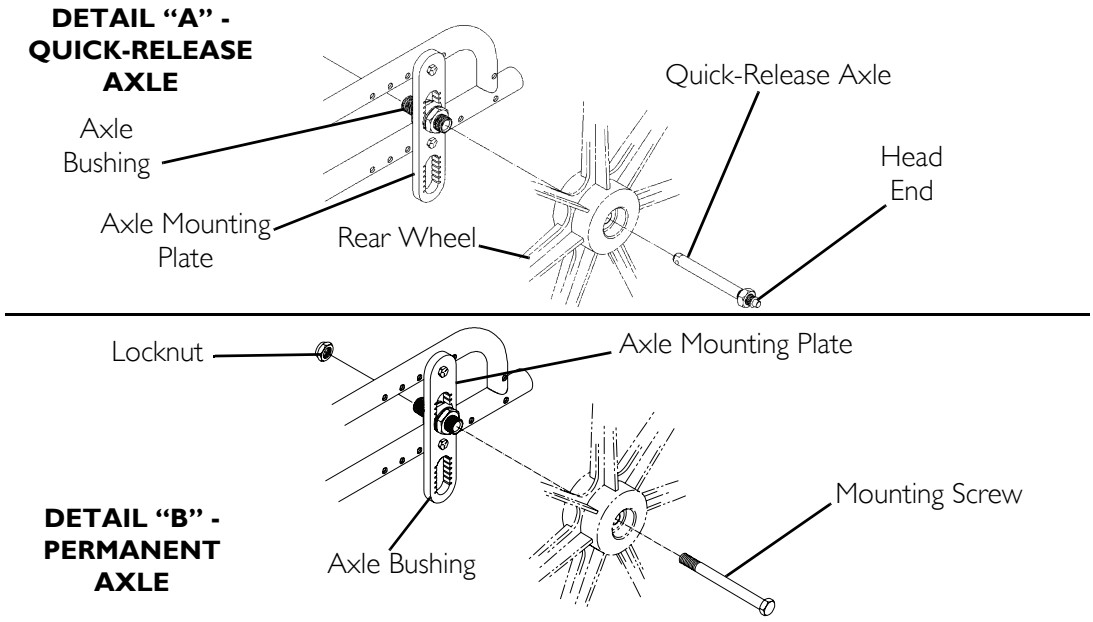


FIGURE 9.1 Removing/Installing Rear Wheels

Adjusting the Quick-Release Axle

NOTE: For this procedure, refer to FIGURE 9.2.

1. Remove rear wheel and quick-release axle from the wheelchair. Refer to Removing/Installing Rear Wheels on page 61.
2. Depress detent pin (tip) in the quick-release axle and slide axle through the wheel hub.
3. Release detent pin ensuring that the locking pins are fully released.
4. Increase or decrease end play by adjusting the locknut on the end of the quick-release axle.

⚠ WARNING

Make sure the detent pin and locking pins of the quick-release axle are fully released before operating the wheelchair.

Keep locking pins clean.

5. Reinstall rear wheel onto wheelchair. Refer to Removing/Installing Rear Wheels on page 61.

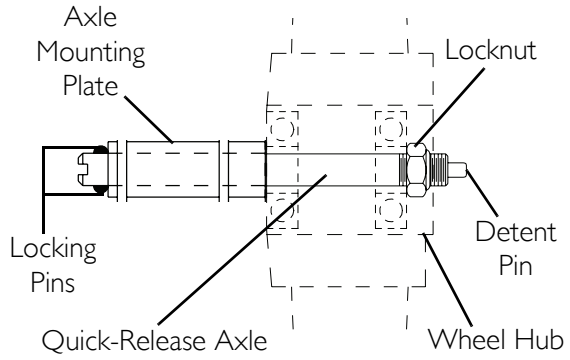


FIGURE 9.2 Adjusting the Quick-Release Axle

Replacing Handrims

Non-Projection Handrims

NOTE: For this procedure, refer to FIGURE 9.3.

NOTE: The following procedures will work for any type of projection handrim.

Removing Non-Projection Handrims

1. Remove rear wheel from the wheelchair. Refer to Removing/Installing Rear Wheels on page 61.
2. Remove the button screws that secure the handrim to the rear wheel and remove handrim.

Installing Non-Projection Handrims

NOTE: For this procedure, refer to

1. Install the new handrim onto rear wheel.
2. Secure handrim to rear wheel with button screws.

⚠ WARNING

Make sure detent pin and locking pins of the quick-release axles are fully released before operating the wheelchair.

3. Reinstall rear wheel onto the wheelchair. Refer to Removing/Installing Rear Wheels on page 61.
4. If the locking pins of the quick-release axles are not protruding past the inside of the axle bushing or there is too much movement of the rear wheel assembly in a back and forth position, refer to Adjusting the Quick-Release Axle on page 62.
5. Repeat procedure for opposite rear wheel, if necessary.

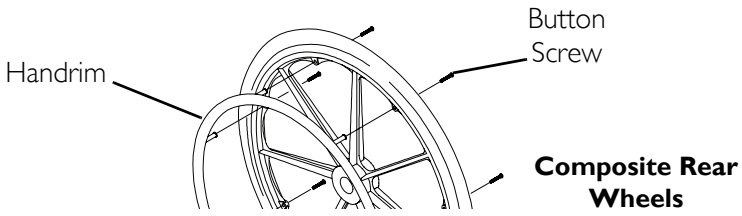


FIGURE 9.3 Replacing Handrims - Non-Projection Handrims

Projection Handrims

NOTE: For this procedure, refer to FIGURE 9.4 on page 64.

NOTE: The following procedures will work for any type of projection handrim.

Installing Projection Handrims

1. If necessary, remove rear wheels from the wheelchair. Refer to Removing/Installing Rear Wheels on page 61.
2. If necessary, remove the existing handrim from the rear wheel. Refer to Replacing Handrims on page 63.
3. Using the long screws, assemble the links to the projection handrim.
4. Position one link with one of the mounting holes in the rear wheel.
5. Install a short screw through the link and the rear wheel and loosely tighten with washer and locknut.
6. Repeat STEPS 3-4 for one link on the opposite side of the rear wheel.

NOTE: The links will attach to the rear wheel at an approximate 45^{o} angle in the same direction.

7. Repeat STEPS 3-4 for the remaining links.
8. Securely tighten the washers and locknuts that secure the projection handrim to the rear wheel.
9. Reinstall rear wheel onto the wheelchair. Refer to Removing/Installing Rear Wheels on page 61.
10. If the locking pins of the quick-release axles are not protruding past the inside of the axle bushing or there is too much movement of the rear wheel assembly in a back and forth position, refer to Adjusting the Quick-Release Axle on page 62.
11. Repeat the procedure for the opposite rear wheel.

Removing Projection Handrims

1. Remove the rear wheel from the wheelchair. Refer to Removing/Installing Rear Wheels on page 61.
2. Remove the short screws and locknuts that secure the links of the handrim to the rear wheel.

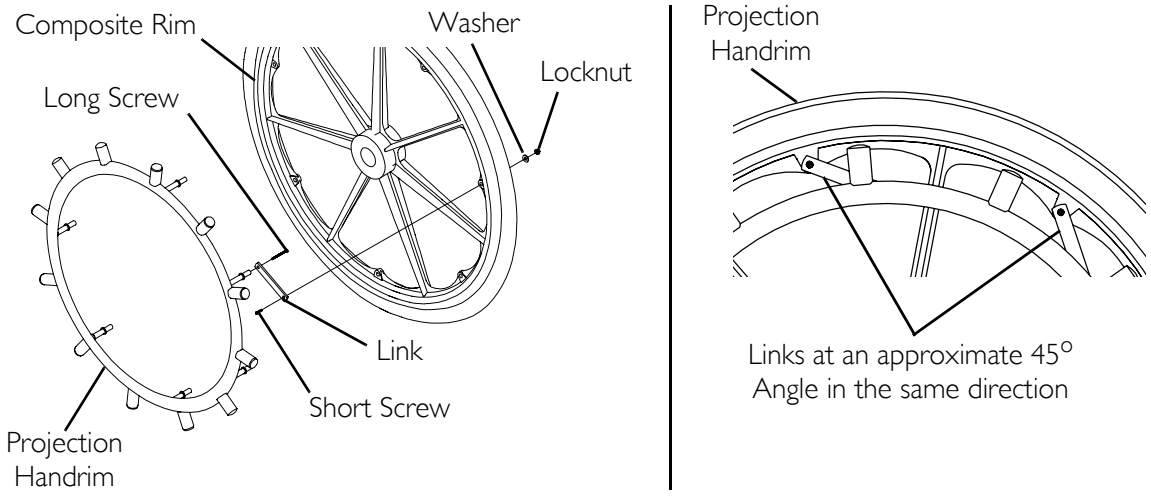


FIGURE 9.4 Replacing Handrims - Projection Handrims

SECTION 10—ANTI-TIPPERS/WHEEL LOCKS

⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

Foot Activated Wheel Lock Procedures

NOTE: For this procedure, refer to FIGURE 10.1 on page 66.

Installing/Removing Foot Activated Wheel Locks

NOTE: Foot activated wheel locks can only be used with 12-inch rear wheels.

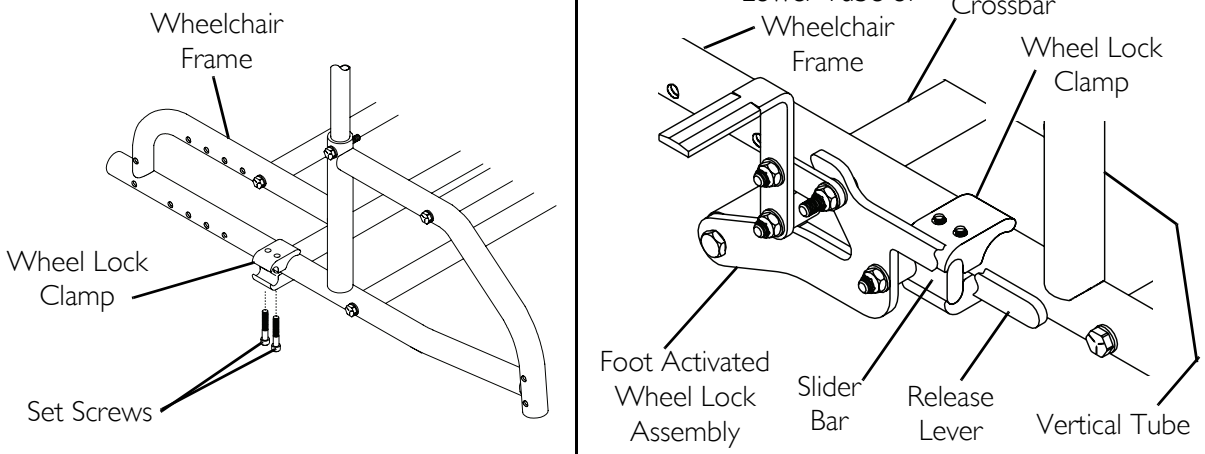
1. Remove the rear wheels. Refer to Removing/Installing Rear Wheels on page 61.
2. Remove existing wheel locks. Refer to Installing/Removing Hand Activated Wheel Locks on page 66.
3. Remove the two set screws that secure the two halves of the wheel lock clamp together.
4. Position clamp onto lower tube of wheelchair frame near vertical tube of the wheelchair frame. Reinstall set screws. Loosely tighten.
5. Repeat STEPS 1-2 for opposite clamp.
6. Align the slider bars, of the foot activated wheel lock assembly, with the clamps on the lower tube of wheelchair.
7. Push slider bars completely forward into clamps.

NOTE: The clamps of the wheel lock may need to be repositioned forward to accommodate reinstallation of the rear wheels.

8. Reinstall the rear wheels. Refer to Removing/Installing Rear Wheels on page 61.
9. Adjust the position of the wheel lock. Refer to Adjusting the Wheel Lock on page 67.

Using Foot Activated Wheel Locks

1. To engage, push down on crossbar of wheel lock assembly.
2. To disengage, lift up on crossbar or release lever.



NOTE: A portion of the Release Lever is cut away to show a better view of the slider bar.

FIGURE 10.1 Foot Activated Wheel Lock Procedures

Hand Activated Wheel Lock Procedures

Installing/Removing Hand Activated Wheel Locks

NOTE: For this procedure, refer to FIGURE 10.3 on page 67.

1. Remove the foot activated wheel lock. Refer to Installing/Removing Foot Activated Wheel Locks on page 65.
2. Do one of the following:
   - For 12-inch Rear Wheels: Position the wheel lock assembly on the LOWER tube of the frame.
   - For 20, 22, or 24-inch Rear Wheels: Position the wheel lock assembly on the upper tube of frame.
3. Loosely tighten the two socket screws that secure the wheel locks to the wheelchair frame.
4. Adjust the wheel locks. Refer to Adjusting the Wheel Lock on page 67.
5. To remove the wheel locks, unthread the socket screws and remove wheel lock from the wheelchair frame.

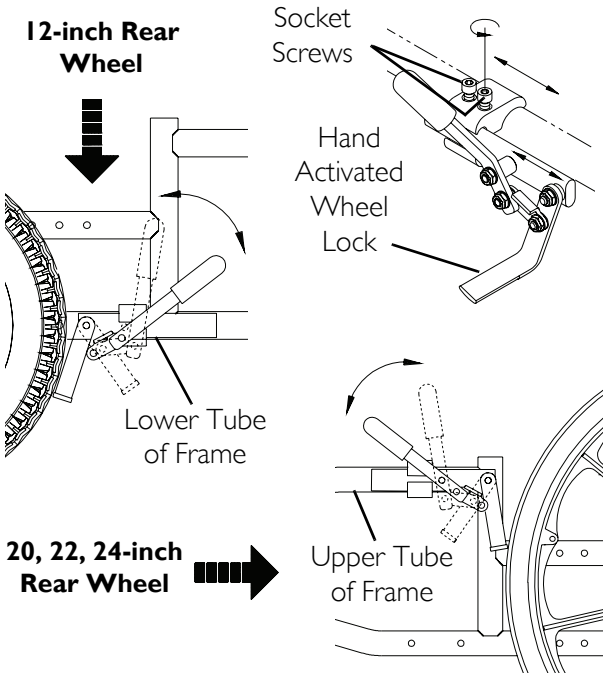


FIGURE 10.2 Installing/Removing Hand Activated Wheel Locks

Engaging/Disengaging Hand Activated Wheel Locks

NOTE: For this procedure, refer to FIGURE 10.3.

1. Push handle forward away from tire to engage wheel locks.
2. Pull handle back toward tire to disengage wheel locks.
3. Only 12-inch rear wheel shown for clarity.

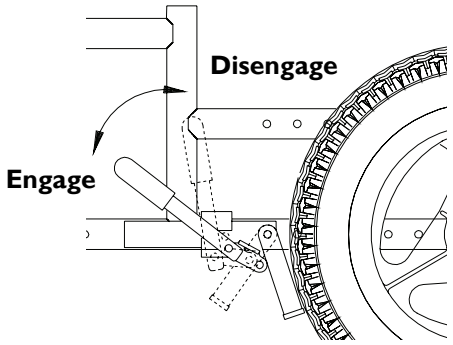


FIGURE 10.3 Hand Activated Wheel Lock Procedures

Adjusting the Wheel Lock

NOTE: For this procedure, refer to FIGURE 10.4 on page 68.

NOTE: Before adjusting the wheel lock assemblies, ensure that the tires are inflated to the recommended P.S.I. on the side wall of the tire.

1. Loosen the two socket screws that secure the wheel lock assembly to the wheelchair frame.

NOTE: Any wheel lock adjustment should embed the wheel lock shoe at least 3/16-inch into the tire when engaged.

2. Adjust the position of wheel lock until the 3/16-inch measurement is obtained for correct wheel lock adjustment.
3. Securely tighten the two socket screws.
4. Repeat procedure for opposite wheel lock.
5. Engage the wheel lock and push against the wheelchair and determine if the wheel lock engages the wheel lock shoe enough to hold the wheelchair.
6. Repeat the STEPS 1-5 until the wheel lock holds the wheelchair.

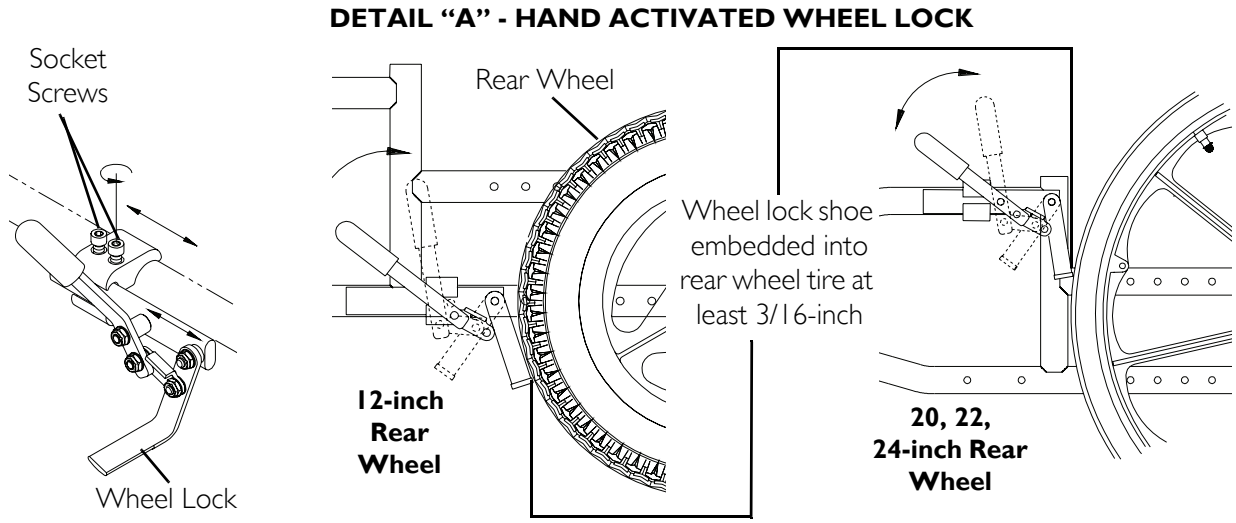


FIGURE 10.4 Adjusting the Wheel Lock

Installing Anti-Tippers

NOTE: For this procedure, refer to FIGURE 10.5.

NOTE: A 1/2-inch clearance between the bottom of the anti-tipper wheels and the floor MUST be maintained at all times

1. Remove the anti-tippers from accessory carton.

⚠ WARNING

Anti-tippers MUST be fully engaged and release buttons fully protruding out of adjustment holes.

2. Press the release buttons in and insert the anti-tippers into the rear frame tubing until the buttons lock in place.

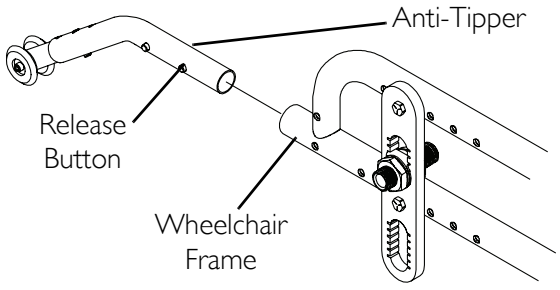


FIGURE 10.5 Installing Anti-Tippers

Adjusting Anti-Tippers

NOTE: For this procedure, refer to FIGURE 10.6.

NOTE: The anti-tippers must maintain a 1-1/2 to 2-inch clearance between the bottom of the anti-tipper wheels and the floor.

1. Depress the release button on the wheeled portion of the anti-tipper and slide it up/down to achieve the 1-1/2 to 2-inch clearance.

⚠ WARNING

Anti-tippers MUST be fully engaged and release buttons fully protruding out of adjustment holes.

2. Check to make sure that the release buttons are fully engaged in adjustment holes and 1-1/2 to 2-inch clearance is maintained.

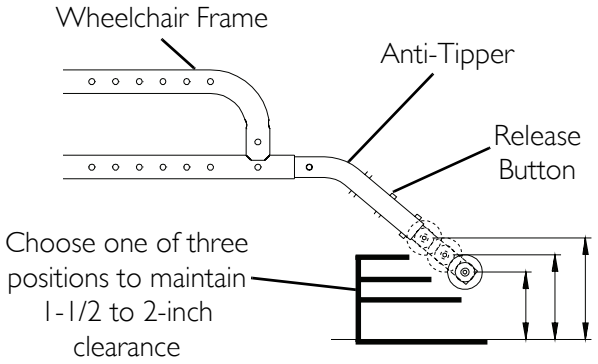


FIGURE 10.6 Adjusting Anti-Tippers

SECTION 11—RECLINER

⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

Engaging Tilt-In-Space

⚠ WARNING

After ANY adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise, injury may result.

ALWAYS make sure that the wheelchair is stable before using the tilt-in-space and/or recline option.

Make sure the occupant of the wheelchair is properly positioned in the wheelchair before using the tilt-in-space, reclining or inclining (reverse recline) to maintain maximum stability and safety. Refer to Safety/Handling of Wheelchairs on page 16.

The Orbit wheelchair MUST be operated by an Assistant when in any tilt or reclined position.

Always engage both wheel locks while using the tilt-in-space, reclining or inclining (reverse recline) the wheelchair.

ALWAYS wear your seat positioning strap. Inasmuch as the seat positioning strap is an option on this wheelchair (you may order with or without the seat positioning strap), Invacare strongly recommends ordering the seat positioning strap as an additional safeguard for the wheelchair user. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, belt must be replaced immediately.

The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, seat positioning strap MUST be replaced immediately.

DO NOT use the release pedal of the tilt mechanism to gain leverage in tipping the wheelchair. The release pedal was not designed to be used in this manner and may cause injury to the assistant and/or user or damage to the wheelchair.

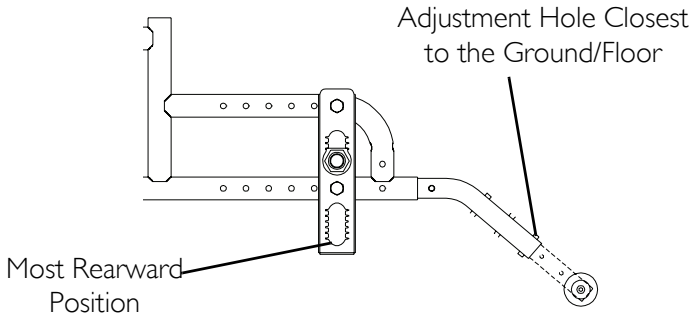
Both gas cylinders MUST be operational and adjusted properly before using recliner. DO NOT operate the recliner option if only one of the gas cylinders is operational or adjusted properly.

Pinch Points exist between spreader bar and gas cylinders. Use caution, otherwise injury may occur.

When returning the occupant of the wheelchair to the full upright position, more body strength will be required for approximately the last twenty degrees of incline (reverse recline). Make sure to use proper body mechanics (use your legs) or seek assistance to avoid injury.

⚠ WARNING

Before using the recliner option, make sure the anti-tipper wheel assemblies are in the lowest adjustment hole (adjustment hole closest to the ground/floor.)



Before using ANY recline position of this wheelchair, make sure the rear wheels are in the most rearward position to maintain the stability of the wheelchair.

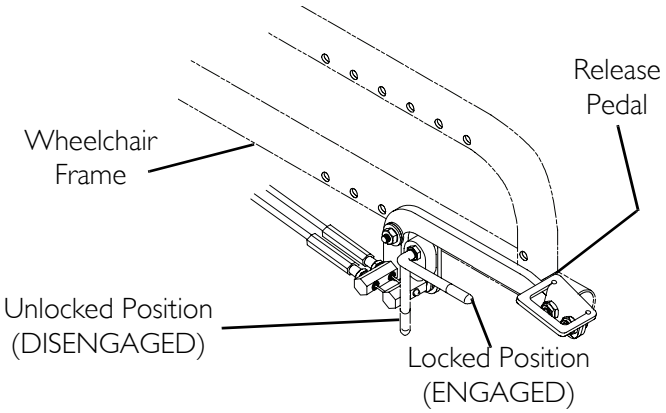
The seat height, seat depth, back angle, pivot point of seat frame, seating system, caster position, size and position of the rear wheels, as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the nine may cause the wheelchair to decrease in stability. These adjustments MUST be performed by an authorized Invacare dealer or qualified technician.

NOTE: For this procedure, refer to FIGURE 11.1 on page 72.

NOTE: Tilt and Recline Combinations:

- *Recline is a term used to define the angle between the seat pan and the back.*
- *Tilt is a term used to define the angle between the seat pan and the ground/floor.*

1. Place the wheelchair on a level surface.
2. Engage both wheel locks. Refer to Hand Activated Wheel Lock Procedures on page 66 or Foot Activated Wheel Lock Procedures on page 65.
3. Disengage the locking mechanism on the release pedal.
4. Inform the occupant of the wheelchair that the wheelchair is about to be tilted and remind them to lean back.
5. Stand behind the wheelchair and apply pressure to the release pedal.
6. Slowly, pull back on the back canes or stroller handle while stepping on the release pedal.
7. When the seat reaches the desired angle, slowly relieve the pressure on the release pedal.
8. Engage the locking mechanism on the release pedal.
9. Disengage wheel locks before attempting to move wheelchair. Refer to Hand Activated Wheel Lock Procedures on page 66 or Foot Activated Wheel Lock Procedures on page 65.
10. Recline the wheelchair if necessary. Refer to Engaging Tilt-In-Space on page 70.



NOTE: Illustration depicts two cables for dual tilt mechanisms. Locking mechanism engages/dise in the same manner for single tilt mechanism.

Non-recliner Models **Recliner Models**

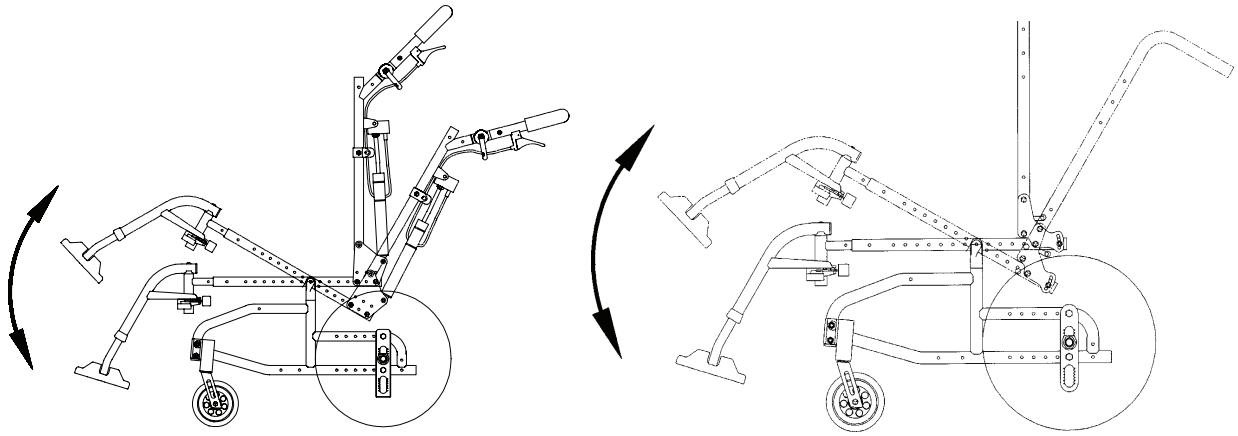


FIGURE 11.1 Engaging Tilt-In-Space

Operating Recliner

⚠ WARNING

Pinch Points exist between spreader bar and gas cylinders. Use caution, otherwise injury may occur.

NOTE: For this procedure, refer to FIGURE 11.2 on page 73.

1. Make sure the wheelchair is on a level surface.
2. Engage the wheel locks. Refer to Hand Activated Wheel Lock Procedures on page 66 or Foot Activated Wheel Lock Procedures on page 65.
3. Inform the occupant of the wheelchair that the wheelchair is about to be reclined.
4. Stand behind the wheelchair and grasp the stroller handle firmly.
5. Pull up on the handles of the recliner cable assemblies to activate the gas cylinders.
6. Slowly, squeeze the handles of the recliner cable assemblies and allow the back to recline to the desired angle.

7. When the back reaches desired angle, slowly release the handles of the recliner cable assemblies.
8. To return the back to the full upright position, reverse the above steps keeping in mind proper body mechanics.
9. Do one following:
   A. Disengage the wheel locks. Refer to Hand Activated Wheel Lock Procedures on page 66 or Foot Activated Wheel Lock Procedures on page 65.
   B. Tilt the wheelchair, if necessary. Refer to Engaging Tilt-In-Space on page 70.

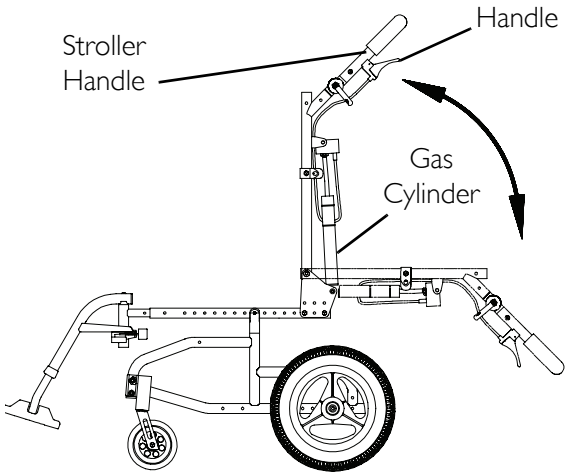


FIGURE 11.2 Operating Recliner

Adjusting Limit Stops of the Tilt Mechanism

Adjusting Anterior (Forward) Limit Stops

⚠ WARNING

Anterior (forward) tilt is a feature of this wheelchair designed for the use of a healthcare professional or assistant only. Repositioning of the anterior (forward) limit stop must NEVER be performed by the wheelchair user. When anterior (forward) tilt is needed, it must ALWAYS be repositioned by a healthcare professional or assistant.

DO NOT operate the wheelchair when the seat frame is in the anterior (forward) tilt position (seat frame is at approximately 10° forward tilt). Serious bodily injury may occur to the patient and the assistant(s).

Adjusting Posterior (Rearward) Limit Stops

NOTE: For this procedure, refer to FIGURE 11.3

⚠ WARNING

Contact a healthcare professional or assistant for allowable tilt angles that are suitable for the occupant.

1. Engage both wheel locks.
2. Tilt wheelchair to desired position.
3. Loosen the set screws that secure the limit stop in place.
4. Position limit stop flush against top of cylinder(s).
5. Retighten the set screws. Securely tighten.
6. If applicable, repeat for other tilt mechanism.

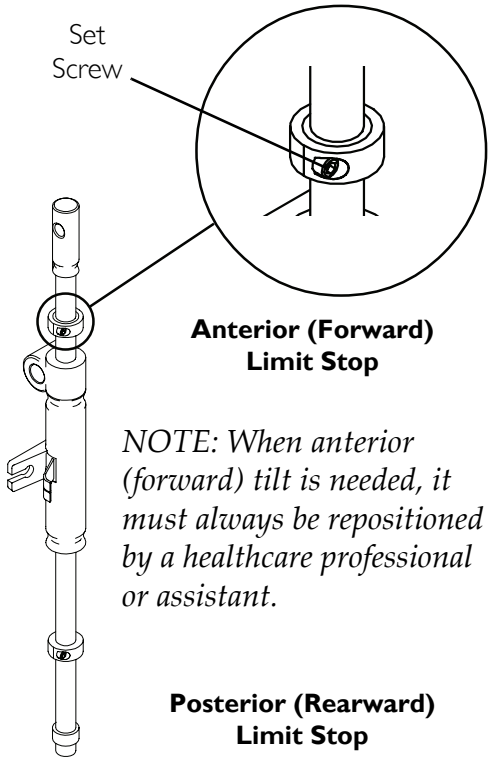


FIGURE 11.3 Adjusting Limit Stops of the Tilt Mechanism - Adjusting Posterior (Rearward) Limit Stops

Replacing Upholstery (Recliner Models Only)

NOTE: For this procedure, refer to FIGURE 11.4 on page 75.

Replacing the Back Upholstery

1. Remove the ten phillips screws (depending on back height) that secure the back upholstery to the back canes.
2. Remove existing back upholstery from back canes.
3. Install new back upholstery onto the back canes.
4. Install the ten phillips screws (depending on back height) that secure the back upholstery to the recliner back canes.

Replacing the Headrest Upholstery

1. Remove the six phillips screws that secure the headrest upholstery to the headrest extensions.
2. Remove the existing headrest upholstery from the headrest extensions.
3. Install the new headrest upholstery onto the headrest extensions.
4. Install the six phillips screws that secure the headrest upholstery to the headrest extensions.

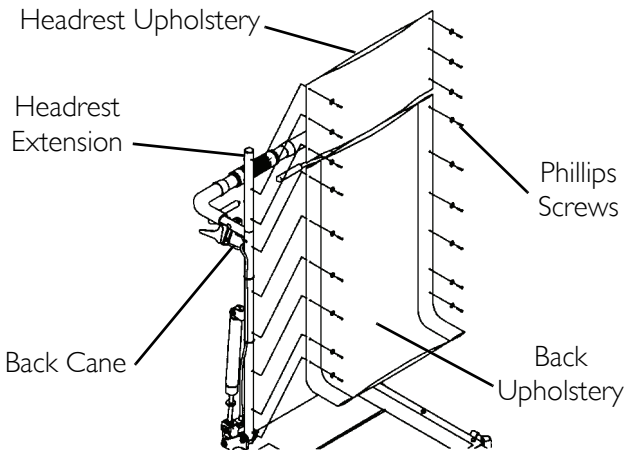


FIGURE 11.4 Replacing Upholstery (Recliner Models Only)

Adjusting the Back Height - Recliner Models Only

NOTE: For this procedure, refer to FIGURE 11.5.

1. If necessary, remove the rear wheels. Refer to Removing/Installing Rear Wheels on page 61.
2. Remove the two mounting screws and locknuts that secure the seat adjustment plates to the seat rail. Repeat for opposite side.
3. Refer to FIGURE 11.5 to determine the seat adjustment plate mounting position for the corresponding seat cushion height.
4. Position the seat adjustment plates on the seat rails at the position determined in STEP 3.
5. Secure the seat adjustment plates to the seat rail with the two existing mounting screws. Repeat for opposite side.
6. Securely tighten mounting screws.
7. If necessary, reinstall the rear wheels. Refer to Removing/Installing Rear Wheels on page 61.

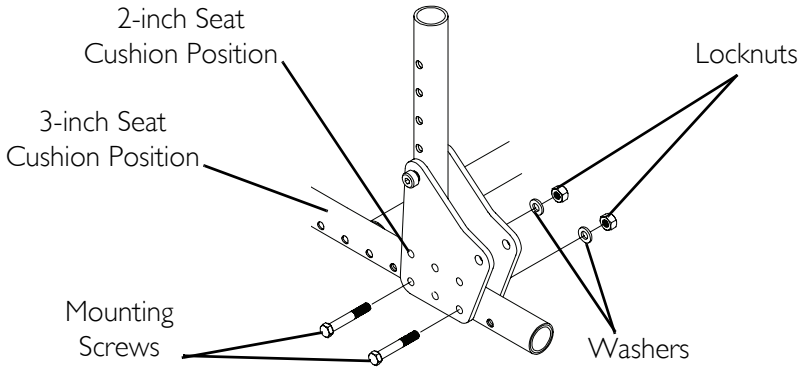


FIGURE 11.5 Adjusting the Back Height - Recliner Models Only

SECTION 12—TRANSPORT READY OPTION

⚠ WARNING

Contact Invacare Corporation (800-333-6900) with any questions about using this wheelchair for seating in a motor vehicle.

When feasible, wheelchair occupants should transfer into the vehicle seat and use the OEM (Original Equipment Manufacturer) vehicle-installed restraint system.

This wheelchair has been dynamically tested in a forward-facing mode with the specified crash test dummy restrained by both pelvic and upper-torso belt(s) (shoulder belts), and that BOTH pelvic and upper torso belt(s) should be used to reduce the possibility of head and chest impacts with vehicle components.

Use ONLY Wheelchair Tie-down and Occupant Restraint Systems (WTORS) which meet the requirements of the SAE (Society of Automotive Engineers) J2249 Recommended Practice during travel in a motor vehicle.

This wheelchair MUST be in a forward facing position during travel in a motor vehicle.

This wheelchair is equipped, and has been dynamically tested to rely on wheelchair-anchored pelvic belts. if desired, vehicle-anchored pelvic belts may be used.

It is strongly recommended that both pelvic and upper-torso belt(s) be used to reduce the risk of injury.

To reduce the potential of injury to vehicle occupants, wheelchair-mounted accessories, including but not limited to IV poles, trays, respiratory equipment, backpacks, and other personal items should be removed and secured separately.

Postural supports, positioning devices, and/or strap(s) should not be relied on for occupant restraint. These items may be used in addition to the wheelchair-anchored or vehicle-anchored belts.

DO NOT alter or substitute wheelchair frame parts, components, or seating systems.

A sudden stop and/or collision may structurally damage your wheelchair. Wheelchairs involved in such incidents should be replaced.

Transport ready packages are not retrofittable to existing models and are not field serviceable.

Only use the transport brackets included with TRRO for the purposes described in this manual.

About Transport Ready Packages

TRRO includes four factory-installed transport brackets and a wheelchair anchored pelvic belt. TRRO has been crash-tested in accordance with ANSI/RESNA WC Vol 1 Section 19 Frontal Impact Test requirements for wheelchairs with a 168 lb crash dummy, which corresponds to a person with a weight of 114 to 209 lbs.

As of this date, the Department of Transportation has not approved any tie-down systems for transportation of a user while in a wheelchair, in a moving vehicle of any type. It is Invacare's position that users of wheelchairs should be transferred into appropriate seating in vehicles for transportation and use be made of the restraints made available by the auto industry. Invacare cannot and does not recommend any wheelchair transportation system.

Compliance Information

This wheelchair conforms with the requirements of the ANSI/RESNA WC/Vol. 1 - Section 19.5.3 (Frontal Impact Test).

NOTE: ANSI = American National Standards Institute, RESNA= Rehabilitation Engineering and Assistive Technology Society of North America.

This wheelchair has been dynamically tested in a forward-facing mode with the specified crash test dummy, which corresponds to a person with a weight of 114-209 pounds, restrained by BOTH pelvic and shoulder belts in accordance with ANSI/RESNA WC Vol 1 Section 19.5.3. BOTH pelvic and upper torso belts should be used to reduce the possibility of head and chest impacts with vehicle components.

Specifications

Only wheelchairs which fit in the following size ranges should be occupied in a motor vehicle:

- 12-inches to 22-inches wide
- 12-inches to 22-inches deep

Weight Limit

MODEL	WHEELCHAIR WEIGHT LIMIT
Orbit	Up to 150 pounds

Securing the Wheelchair to the Vehicle

Positioning the Wheelchair in the Vehicle

⚠ WARNING

This wheelchair must be in a forward facing position during travel in a motor vehicle.

The recommended clear zones for wheelchair seated occupants restrained by both pelvic and upper torso belt(s) and only by a pelvic belt are shown in the diagrams and described below.

Frontal Clear Zones (FCZ) need to be larger when upper torso belt(s) are not used.

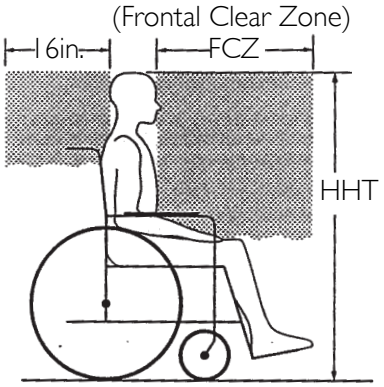
The rear clear zone of 16-inches is measured from the rearmost point on an occupant's head.

The frontal clear zone is measured from the frontmost point on an occupant's head and is 26-inches with pelvic and upper-torso belt(s) and 37-inches with only a pelvic belt.

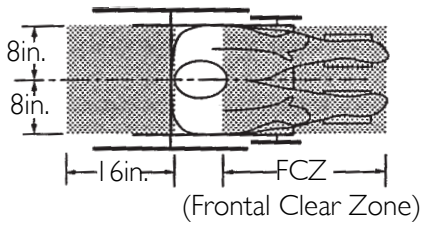
The frontal clear zone may not be achievable for wheelchair-seated drivers.

The estimated seated height (HHT) from the ground or floor to the top of the wheelchair-seated occupant's head ranges from approximately 47-inches for a small adult female to about 61-inches for a tall adult male.

Side View



Top View



Securement Points

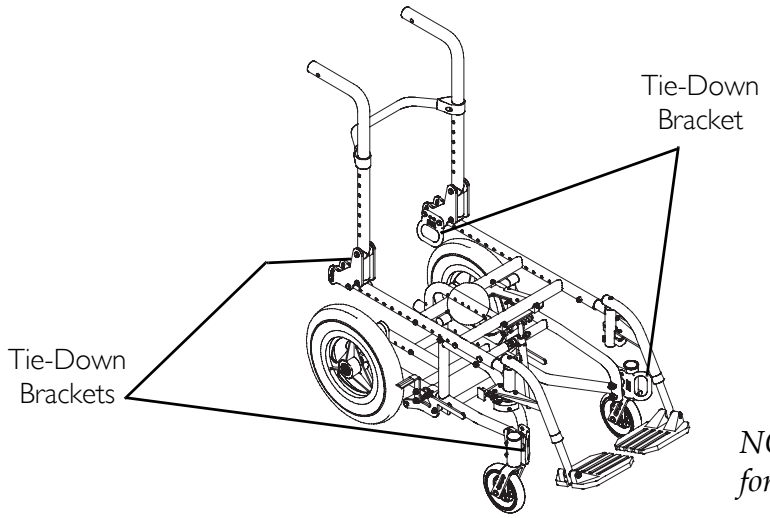


FIGURE 12.1 Securement Points

Securing the Wheelchair

This wheelchair is to be used only with Wheelchair Tie-down and Occupant Restraint Systems (WTORS) that have been installed in accordance with the manufacturer's instructions and SAE J2249.

NOTE: A copy of SAE J2249 Wheelchair Tie-down and Occupant Restraint Systems (WTORS) for use in Motor Vehicles can be obtained from: SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, (877) 606-7232 or (724) 776-4970.

Attach WTORS to the tie-down brackets in accordance with the manufacturer's instructions and SAE J2249.

Securing the Occupant

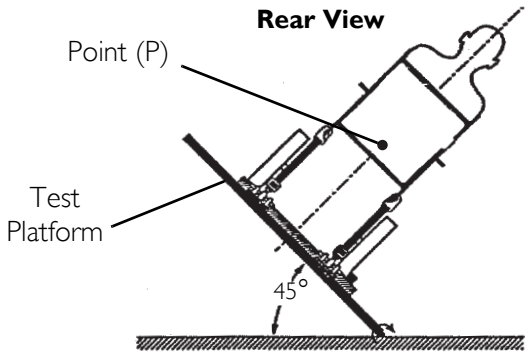
Vehicle-Anchored Belts

NOTE: For this procedure, refer to FIGURE 12.2.

This wheelchair has an overall rating of "B" with regard to accommodating the use and fit of vehicle-anchored belts. This rating is scored as follows:

RATING	DESCRIPTION
A	Excellent
B	Good
C	Fair
D	Poor

The test for Lateral Stability Displacement for Point (P) is shown in FIGURE 12.2. The average test result for point (P) is 0.77-inches (19.6 mm).



NOTE: Rear view of wheelchair and human surrogate secured on test platform and tilted to 45 degrees.

FIGURE 12.2 Vehicle-Anchored Belts

Seating System

⚠ WARNING

This wheelchair has been tested for seating in a motor vehicle with the factory installed seating system only.

When feasible, wheelchair occupants should transfer into the vehicle seat and use the OEM (Original Equipment Manufacturer) vehicle-installed restraint system.

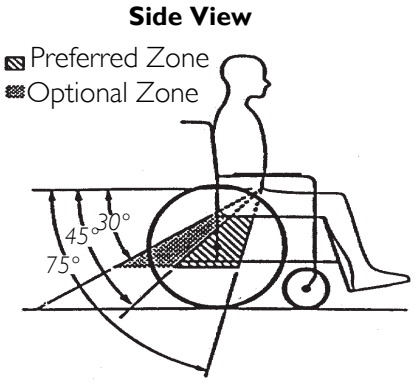
Ensure that the factory installed seating system is secured to the wheelchair frame before operation. Refer to the seating system owner's manual.

Positioning Belts

⚠ WARNING

The angle of the pelvic belt should be within the preferred zone of 45 to 75 degrees to the horizontal or within the optional zone of 30 to 45 degrees to the horizontal.

Steeper side-view pelvic belt angles are especially important if the pelvic belt is intended to be used for postural support in addition to occupant restraint in a frontal crash. Steeper angles will reduce the tendency for a vertical gap to develop between the user and the belt due to compliance of seat cushions and belt movement, thereby reducing the tendency for the user to slip under the belt and for the belt to ride up on the soft abdomen during normal use.

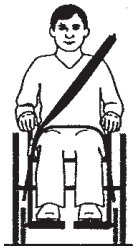


Steeper belt angles also reduce the tendency for upper-torso belts to pull the pelvic belt onto the abdomen during frontal impact loading.

NOTE: For this procedure, refer to FIGURE 12.3.

1. The pelvic belt should be worn low across the front of the pelvis.
2. Position the upper torso belt(s) over the shoulders.
3. The belt(s) should not be held away from the body by wheelchair components or parts, including but not limited to wheelchair armrests or wheels. Refer to FIGURE 12.3 for proper and improper positioning of the belts.
4. Ensure the belt(s) are not be twisted.
5. Adjust belts as firmly as possible, being mindful of user comfort.

DO position belts INSIDE of armrests, wheels, etc.



DO NOT position belts OUTSIDE of armrests, wheels, etc.

FIGURE 12.3 Positioning Belts

SECTION 13—OPTIONS

⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

RECLINER MODELS ONLY - If the ventilator, ventilator battery, or ventilator tray option is removed, the recliner limit stop MUST be installed before operation of the wheelchair. Otherwise, injury or damage may result.

Using the Ventilator Tray

NOTE: For this procedure, refer to FIGURE 13.1.

1. Position all four straps to the outside of the ventilator tray.
2. Position the ventilator battery in the front portion of the ventilator tray.
3. Secure the two straps around the top of the ventilator battery and clip together.
4. Position the ventilator in the rear portion of the ventilator tray.
5. Secure the two straps around the top of the ventilator and clip together.
6. Adjust the slides, located in the middle of each strap, up or down to increase or decrease length. (See Detail "A").
7. Securely tighten the straps around the battery and ventilator by pulling the ends of the straps through the rear portion of each buckle. (See Detail "B").

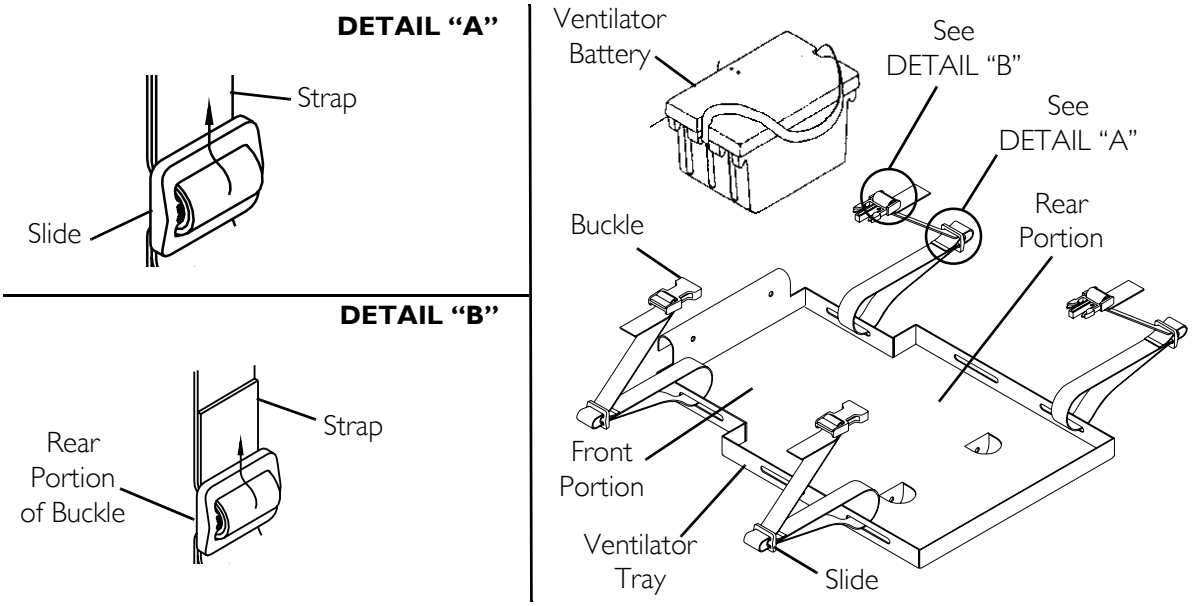


FIGURE 13.1 Using the Ventilator Tray

LIMITED WARRANTY

PLEASE NOTE: THE WARRANTY BELOW HAS BEEN DRAFTED TO COMPLY WITH FEDERAL LAW APPLICABLE TO PRODUCTS MANUFACTURED AFTER JULY 4, 1975.

This warranty is extended only to the original purchaser who purchases this product when new and unused from Invacare or a dealer. This warranty is not extended to any other person or entity and is not transferable or assignable to any subsequent purchaser or owner. Coverage under this warranty will end upon any such subsequent sale or other transfer of title to any other person.

This warranty gives you specific legal rights and you may also have other legal rights which vary from state to state.

Invacare warrants the side frames and cross members of this product when purchased new and unused to be free from defects in materials and workmanship for a period of five years from the date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. Invacare warrants the upholstered materials (seat, back and armrests of the arm assembly) and remaining components of this product when purchased new and unused to be free from defects in materials and workmanship for a period of thirteen months from date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. If within such warranty periods any such product shall be proven to be defective, such product shall be repaired or replaced, at Invacare's option. This warranty does not include any labor or shipping charges incurred in replacement part installation or repair of any such product. Invacare's sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.

For warranty service, please contact the dealer from whom you purchased your Invacare product. In the event you do not receive satisfactory warranty service, please write directly to Invacare at the address at the bottom of this page. Provide dealer's name, address, the product model number, date of purchase, indicate nature of the defect and, if the product is serialized, indicate the serial number. DO NOT return products to our factory without our prior consent.

LIMITATIONS AND EXCLUSIONS: THE FOREGOING WARRANTY SHALL NOT APPLY TO SERIAL NUMBERED PRODUCTS IF THE SERIAL NUMBER HAS BEEN REMOVED OR DEFACED, PRODUCTS SUBJECTED TO NEGLIGENCE, ACCIDENT, IMPROPER OPERATION, MAINTENANCE OR STORAGE, PRODUCTS MODIFIED WITHOUT INVACARE'S EXPRESS WRITTEN CONSENT INCLUDING, BUT NOT LIMITED TO, MODIFICATION THROUGH THE USE OF UNAUTHORIZED PARTS OR ATTACHMENTS; PRODUCTS DAMAGED BY REASON OF REPAIRS MADE TO ANY COMPONENT WITHOUT THE SPECIFIC CONSENT OF INVACARE, OR TO A PRODUCT DAMAGED BY CIRCUMSTANCES BEYOND INVACARE'S CONTROL, AND SUCH EVALUATION WILL BE SOLELY DETERMINED BY INVACARE. THE WARRANTY SHALL NOT APPLY TO NORMAL WEAR AND TEAR OR FAILURE TO ADHERE TO THE PRODUCT INSTRUCTIONS.

THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES WHATSOEVER, WHETHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND THE SOLE REMEDY FOR VIOLATIONS OF ANY WARRANTY WHATSOEVER, SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT PURSUANT TO THE TERMS CONTAINED HEREIN. THE APPLICATION OF ANY IMPLIED WARRANTY WHATSOEVER SHALL NOT EXTEND BEYOND THE DURATION OF THE EXPRESS WARRANTY PROVIDED HEREIN. INVACARE SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES WHATSOEVER.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGE, OR LIMITATION OF HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE EXCLUSION AND LIMITATION MAY NOT BE APPLICABLE.

THIS WARRANTY SHALL BE EXTENDED TO COMPLY WITH STATE/PROVINCIAL LAWS AND REQUIREMENTS.

Yes, you can.

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Part No. 1073955

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